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# QUARTERLY

The seal of The Chicago Medical School is positioned behind the word "QUARTERLY". It is a circular emblem featuring a caduceus (a staff with two snakes entwined and wings at the top) in the center. The words "THE CHICAGO MEDICAL SCHOOL" are inscribed around the border of the seal.

THE CHICAGO MEDICAL SCHOOL

VOLUME 3, NUMBER 1

SEPTEMBER, 1942

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Medicine is no stranger to War • Since the first light of dawning civilization, forces of good have been pitted against those of ill • In presenting our articles, we have tried to encompass the task of depicting both war effort and medical advancement • We have editorialized to distill the only attitude towards doubts and prejudices in these times of necessary unity • Dr. Allan S. Shohet, in his terse clinical style, presents cases for thought from Cook County Hospital wards • Realizing the massive machinery necessary for able efficiency of our war-time medical problems, the knowledge of how Russia handles similar situations in a war-torn country is something both to marvel at, envy, and emulate • Adding to a wealth of surgical knowledge, Dr. Louis Plzak turns writer and tells of only too prevalent occurrences in the life of a surgeon • From the Department of Physiological Chemistry comes the story of the development of Blood Analysis in diagnosis and treatment. An ardent worker in the field, Miss Bess Osgood authors the paper • Completely surveying this little known section of surgery, Dr. Sol Wolffson discusses the pedagogical, medical, and surgical aspects of Persistent Urachus and discusses his rare cases thoroughly • To anyone having an appreciation for a difficult subject handled deftly and clearly, the thesis on the Differential Diagnosis of Jaundice by Dr. Ernst Löffler will fulfill all expectations. It is a summary worthy of many readings • The fine work done by our Pediatrics Clinic is reviewed in a Staff article complete with photographs and an outline of the routine necessary for the continual health of the child • Read about our Alumni and Faculty in Service of our Country. An incomplete list is presented since notices arrive every day of newly appointed medical officers • We also give you Poetry to sooth the weary mind • Sketches to stimulate the laugh • Tidbits to while away the minutes • Book Reviews to brush upon the latest • Abstracts to glean a little "extra" • And, as usual, Organizations, Alumni, and Board of Directors news • Support your Quarterly, it belongs to you as much as you belong to your freedom, rights, and country • Good Luck in exams • We'll see you next issue.

THE QUARTERLY

# QUARTERLY

Published Quarterly Under the Auspices of

THE CHICAGO MEDICAL SCHOOL

VOLUME 3, NUMBER 1

SEPTEMBER, 1942

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## EDITORIALS

**S**TUDENTS of The Chicago Medical School and of the other medical schools in Chicago may soon find an important and worthwhile place in the service of our community. At present, plans are being considered whereby students may volunteer their services to act as assistants in the hospitals. At a time when hospitals are understaffed and overloaded with work, simple routine procedures can be carried out by students. Thus interns, residents, and attending men will have time available for work which requires their more advanced technical skill. Considerable benefit will be derived from such a plan both to the hospital patients in the form of better treatment, and to the students, in the form of experience. The more experienced the medical personnel, the better will the Chicago community be able to handle the present and future emergency situations. Medical students must remember that we have a role to play in Civilian Defense, and by working for the consummation of this plan, we will be able to fulfill our obligation to our community and thus to our embattled nation. When our armed forces are facing the enemy, it is our duty to find our place and help on the Home Front.

• • •

**W**E WRITE in very critical times. In recent days we have learned of the orderly but nevertheless steady retreat of the Russian armies in the East, of the virtual stalemate on the Egyptian desert, and of the first real participation by American forces in raids on the European continent. In the Pacific, Allied forces are just beginning to pummel the Japanese, but the tide has not yet turned.

It thus becomes imperative that greatest unity in word and deed be established among the United Nations. Our gravest concern, and hence our every effort, must be directed toward binding international and national unity. Every part of every nation must be given a good understanding of our common stakes in the war. Every expression of our national life, our art and our science, must be critically evaluated, to determine how it may help the war effort. Every divisive force must be exposed.

It is with considerable pleasure and pride in our American men of science, that we read of the recent report of the American Association of Physical Anthropologists (J. A. M. A., July 4th, 1942).

In words that would cause the Hitlerian "theorists" to snarl, they point out the utter fallacy of the policy of segregating Negro and White blood by the American Red Cross. This unjust procedure, at a time when pregnant mare serum and stallion urine are gratefully accepted by the medical profession and the laity, and when the Federal government subsidizes research on hog, sheep, and cattle derivatives for blood substitutes, can only lend comfort to the enemy, giving him a weapon to divide us. It is this short-sightedness, this retention of old doubts and prejudices in the handling of minority races, that cost us Malaya and Singapore. Americans would do well to root out these and similar racial dogmas and thus make clear to the world our true devotion to the cause of liberty and democracy.

## ALONG THE WARD WALK

ALLAN S. SHOHEI, M.D.

*Associate Professor of Clinical Medicine,  
The Chicago Medical School*

You will probably seldom see cases of this sort. On the clinical assembly line of the Cook County Hospital cases, patients and conditions seldom come in identical pairs. Here the will of the clinician, armed with the limitless facilities for study and research, brings forth the curious, the interesting and, at times, the puzzling play of natural forces behind the stage of sickness and disability. Here, too, one may marvel at the efficiency of our modern therapeutic measures. Tiny "sulfa" tablets halt the tide of overwhelming sepsis. Intravenous medications beats back the mighty forces of death and destruction. And along with this, as if to emphasize our limitations, we stand at the next bed and helplessly watch the futility of our efforts. Nature is snuffing out another life.

### Case 1.

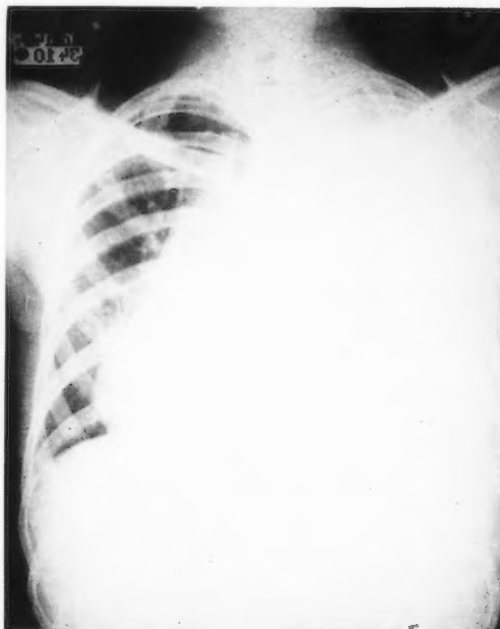
#### A Very Crowded Chest.

T. C., a boy aged 19, poorly nourished and pale was admitted July 14, 1942. Complaints: epistaxis for 1 week, and also once 2 months ago; cough, swelling of ankles, wrists, and hands and pain in the left chest posteriorly for 8 weeks; loss of 15-20 lbs. in 2 months. Past history: In good health until 1 year ago when a swelling of his left testicle was noticed, and orchiectomy was performed at another hospital. The pathologist then reported: embryonic carcinoma on the basis of teratoma testis. Well until 2 months ago.

The painful non-productive cough can be relieved by lying on his left side, but recumbent position often brings on marked dyspnea.

Essential physical and laboratory findings: temperature 98.4° F., pulse 132, respirations 36, blood pressure 114/70. Pupils are round and equal and respond well to light and accommodation. Chest is somewhat asymmetrical with a bulge roughly over the precordial area. Expansibility of left chest is definitely diminished. Intercostal spaces on right side are widened. Tactile fremitus is absent throughout left chest and exaggerated on the right. Flatness is present over entire left chest except at apex where the note is dull. Right chest is generally hyper-resonant. Breath sounds are absent on left side.

The heart is contained in the right chest. Its right border outline is, in notching and bulging, almost a mirror image of the usual left heart border in cases of



left ventricular hypertrophy. The mid-clavicular line is 9 cm. from the midsternal line. In the second right interspace the heart measures 3½ cm., in the third, 5 cm., and in the sixth, 12 cm. The apex impulse is diffuse and strong in the 5th and 6th right interspaces. The first tone can best be heard in the right anterior axillary line. No heart tones are heard to left of the sternum. No murmurs. No arrhythmias. No thrills.

The abdomen is negative except for the uniformly enlarged liver which is palpable four fingerbreadths below the right costal margin. There is a suspicion of clubbing of fingers. The reflexes are normal. There is a surgical scar on the left side of the scrotum.

On July 16, 1942, 100 cc. of a dark reddish-brown fluid was removed from the left chest and sent to the laboratory, and four days later 800 cc. of a similar fluid was removed from the same chest. The fluid was cloudy with specific gravity of 1.020.

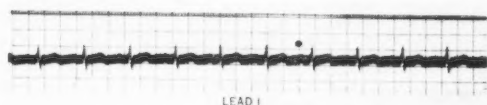
Blood count: Hb. 73%, erythrocytes 3,740,000, leucocytes 9400, neutrophils 84%, eosinophils 1%, lymphocytes 8%, monocytes 6%, basophils 1%. Blood chemistry: NPN 41; creatinine 1.3; uric acid 3.9; Kahn test—negative.

Culture of pleural fluid showed staphylococcus albus. E.K.G. as shown.

X-ray of the chest as on the accompanying pictures.

Diagnosis: massive metastatic embryonic carcinoma with serosanguinous, partly decomposed pleural fluid occupying practically the entire left chest and displacing heart entirely to within right chest.

Discussion: Though the rapid growth of teratomatous tumors is well known, the huge mass of this tumor which presumably developed within a year is rather exceptional. As seen from the E.K.G., the position of the heart is not dextrocardia but a true displacement. One wonders at the relatively few mechanical disturbances from such unavoidable distortion and twisting of the major blood vessels in the mediastinum.



LEAD I



LEAD II



LEAD III



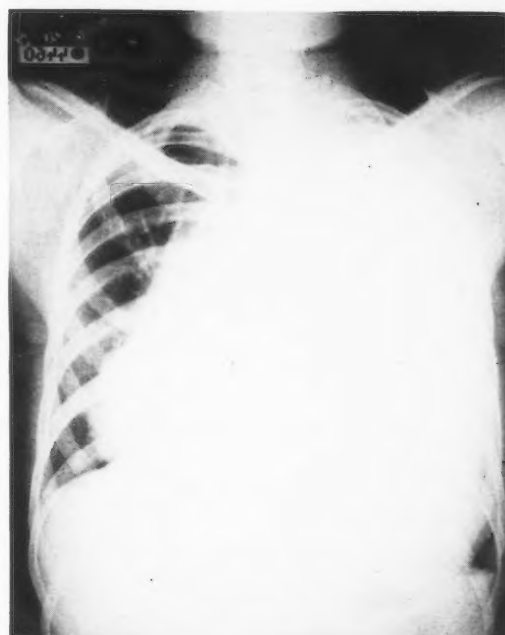
LEAD IV

Question: could the course of the disease have been altered one year ago?

Note: Patient is now in extremis.

July 31, 1942 Autopsy report: Massive infiltration of the upper portions of the parietal pleura of left chest with knobby, pearly white tumor masses.

About 1500 cc. of brownish-red fluid in the left pleural cavity. The entire left lung is replaced by clusters of pearly, white, soft tumor masses which in places show evidence of cystic degeneration. One similar mass, the size of a plum, located in middle of the right lung and another somewhat smaller mass is found in periaortic glands near the pancreas. The lower half of the right lung shows pneumonic con-



solidation. Other organs are essentially negative. The heart is small and is contained in the right chest. Its left border is straight and vertical.

#### Case 2.

##### Has Gonococcal Endocarditis Been Cured?

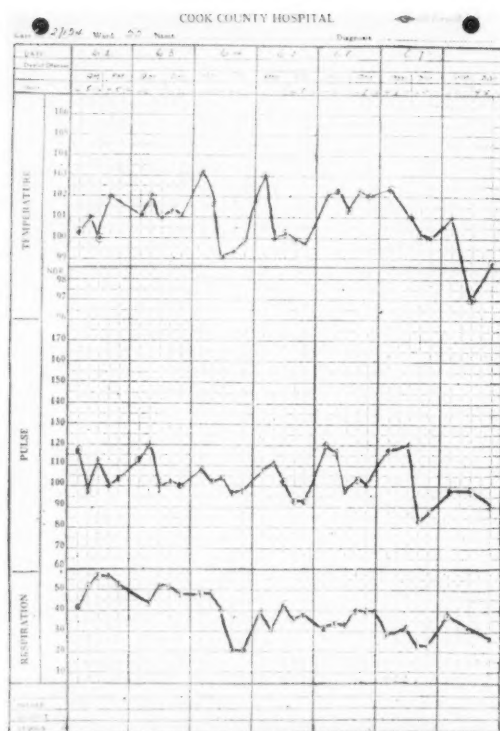
C. S., a 32 year old truckdriver was admitted to the hospital May 26, 1942 stating that six days previously, while preparing to drive from Boston to Chicago, he was seized with sharp pain and swelling in the right testicle. A local druggist obligingly sold him a bottle of fluid to be injected into the urethra. He only used the injection once. On the way to Chicago, the pain grew worse and spread also to the right knee.

He admits at least two separate infections with gonorrhea, the last time about one and a half years ago. He had scarlet fever in childhood.

Essential findings: temperature 99.6° F., blood pressure, 110/80, pulse 110. Both knees were tender, painful and hot; the prostate felt warm, moderately enlarged and very tender. Two days later the left shoulder became painful and the patient was having bouts of chills and fever. A soft systolic murmur then appeared at the apex. A tentative diagnosis was made of gonorrheal arthritis with possible endocarditis, and the patient was put on sulfathiazole, gr. 60 to start and gr. 15 q.i.d. thereafter.

The course continued stormy. The pain had spread to the elbows; the fever continued high and septic in





type. Five days after admission, rales and tubular breath sounds were detected in both lower lung lobes, and the development of pneumonia was suspected; the heart, both on physical examination and on X-ray pictures, appeared generally enlarged, but the X-ray pictures failed to disclose any evidence of pneumonia. Passive congestion was the finding. X-ray pictures of the joints proved entirely negative. The temperature reached a peak of 103.6° F. with a period of remission extending from June 11 to 19, after which the fever again became septic and continued so until June 28. It has been normal since that date. The pulse rate, however, continues between 90 and 106 per minute.

Blood culture proved positive for gonococci on June 4, 1942, but never again since or before. The blood count showed Hb 94%, erythrocytes 5,120,000, leucocytes 9700.

The systolic heart murmur became changeable and variable both in location and in intensity and was inaudible at times and at others appeared over the aortic or pulmonic areas.

For the past three weeks the temperature remained normal. The pulse rate, however, continued close to 100 per minute or higher. Pain has disappeared.

During the entire period the patient has ingested approximately 2,280 grains of sulfathiazole.

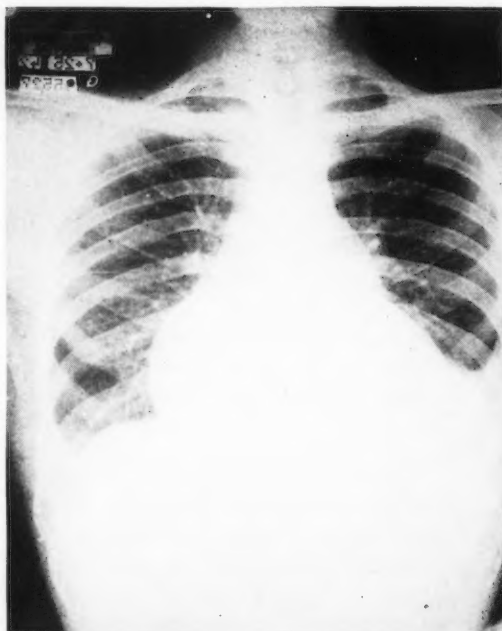
Question: Has this patient recovered from gonococcal endocarditis?

### Case 3.

#### A Heart With A Problem.

R. T., a 25 year old Negro was admitted to the hospital on July 25, 1942. Well until about four weeks ago, he started complaining of shortness of breath, cough, swelling of ankles, intermittent diarrhea, chills and fever. The patient dates his difficulties from the time he started working in a "drafty" room of a Stock Yards slaughterhouse. The sweats were especially drenching at night and the cough has been nonproductive. There has been no loss of weight. Orthopnea and swelling of ankles came on simultaneously. He claims to have had a chancre at age of 16. The past history is otherwise entirely negative.

Essential findings: blood pressure 110/80; temperature 102° F.; pulse 120-140 per minute; respirations 22 per minute. The patient does not appear ill and is quite comfortable when sitting up and enjoys his meals. The heart tones are somewhat impure but quite distinct and the rate is regular. No murmurs or any other adventitious sounds are heard over the precordium. The cardiac dullness, on percussion, extends from the right midclavicular line to about the left anterior axillary line with a bulge in the third



(Continued on page 38)

## RUSSIAN MEDICINE IN WAR TIME

DANIEL HALPERN

Ed. Note: In our last issue we presented to our readers information on the organization of medical care and allied problems by the British government. It is our pleasure now to present equivalent data from the Russian government. The information contained herein was received from the Information Bureau of the Soviet Embassy and was assembled by the author. B printing this article we hope to make known to our readers something of the great efforts of our heroic Russian allies.

Medicine, like all of Soviet science and all of Soviet thought and life today, is characterized by a complete and intensive preoccupation with the defense of the nation. This attitude may be exemplified in the statement of Peter L. Kapitsa, Member of the Academy of Sciences of the U. S. S. R.: "All Soviet people, including scientists understand well enough that only by straining ourselves to the utmost can we drive out the hated invaders with the least damage to our country. We understand that the struggle now going on is one of life and death, and that the yoke of fascism would not only turn the collective farmer into a serf under a German landlord, but would deprive the Soviet scientist of his freedom for creative work and of the joy of serving his country and world culture. It is this realization that powerfully spurs our scientists onward." And so, mathematicians turn from abstruse problems of mathematical theory to detailed analysis of the theory of probability as related to the calculation of trajectories of projectiles in flight, thereby increasing the accuracy of gunfire. Chemists devote their time searching for substitutes for balsam of Peru, the importation of which is difficult, to supply an important component of the famous Vishnevski curative salve familiar to many wounded men. Physiologists attempt to improve the sight of air-observers. Botanists work out rules of camouflage, taking into account seasonal change of vegetation.

To this end, the medical care in the Soviet Union has been organized with a combination of meticulous attention to detail and a breadth of scope which is inspiring. Under conditions of modern warfare, this has demanded a carefully thought out and efficient organization which will not leave the wounded without prompt assistance during a rapid advance, or during defense of fortified positions. This organiza-

tion is provided by the Red Army Medical Service which has an extensive network of first aid stations and hospitals along the routes of evacuation, staffed with medical specialists and necessary supplies.

The key link to this service is the institution of facilities for qualified medical aid close to the front lines. Eminent surgeons and rank and file army doctors routinely perform operations on intestinal and pulmonary organs under the most primitive conditions, in dugouts, tents, and huts. Yet, no departure from the fundamentals of antiseptics is tolerated. Sterile smocks, gloves, masks, portable electrical lamps, and carefully maintained instruments are the invariable conditions of procedure. Dressings are sterilized on the spot by each medical battalion or field dressing station. Steam sterilizers are set up in a dugout or small tent and maintain a steady supply of sterilized material for operating surgeons who work indefatigably day and night. So close to the front do field surgeons work that field hospitals have to be carefully camouflaged from enemy recognition. An example of the condition of work is the instance of Professor A. Vishnevski whose operation tent was strafed by a plane while he was in the midst of an operation on a wounded soldier. The patient was hit in the leg by a bullet. Dr. Vishnevski finished the operation and then removed the newly arrived bullet one minute after it had struck.

Early surgical attention and timely use of prophylactic and curative sera in the initial stage of evacuation has cut down the incidence of anaerobic gas bacillus and tetanus infection. The winter counter-offensive of the Red Army raised new problems for the Medical Service. Prevention of frostbite included heated ambulance cars, fur and padded blanket bags, improvised padded dressings, extensive use of chemical heating pads and frequent warming and feeding stations along ambulance routes. Often the wounded had to be carried through vast snowy wastes, in the midst of blizzards and snowstorms which made roads impassable. Yet, despite this, the Red army has not had one case of a wounded man in transit contracting frostbite. Frostbite contracted during battle was treated by immediate despatch to the field or rear hospital for treatment. The treatment was usually by the open method with the help of physiotherapeutical apparatus.



Hospitals of the Red army are highly specialized. Wounds of the skull, eye, face, jaw, breast, and limbs, are each treated in separate hospitals, thus making expert care more easily accessible. Even finger and wrist wounds are treated by specialists, whose efforts are turned toward restoring normal function of the damaged organ.

Surgeons at front line hospitals work devotedly to save the lives of men severely wounded in the abdomen, breast, or head. Doctors at base hospitals give time, knowledge, and patience to functional treatment of limbs with special attention to fingers and wrists.

Systematic restorative treatment for light wounds is given in hospitals in each army area. This curative physical culture treatment consists of local and general gymnastic exercises, sports and games. Labor therapy, for which special workshops are set aside, walking games in the open air, and lastly military exercises, are all designed to render the lightly wounded man fit for return to the ranks.

These hospitals are equipped with quartz lamps, paraffin and other methods of heat treatment to facilitate absorption of infiltrations and swellings and to speed regeneration of injured tissue. Heat treatments are also used to prevent chronic contractures, immobility of joints and deformities liable to lead to permanent invalidism. Functional cure of injured limbs is attempted by use of plaster of Paris casts and a regime of alternating movement and rest.

Throughout the varied difficult and danger work at the front, Soviet physicians maintain regular army medical conferences at which papers are read by eminent surgeons as are also communications and demonstrations by younger men based on field experiences.

At no time is their connection with the other United Nations forgotten. To quote Brigadier Surgeon Valentina Gorinevskaya, leading woman surgeon and Inspector of the Red Army Medical Service: "Our country is making every effort to keep our hospitals at the front and in the rear adequately supplied with medicaments, instruments and apparatus. Our medical circles note with gratitude the activities of the public in America and Great Britain, whose noble purpose is to send medical supplies to the Red Army, which bears the main brunt of the Hitlerite hordes for the liberation of the world from the German fascist menace."

Care of the wounded in the Red Army goes beyond mere organization of medical personnel and detail. The Soviet people recognize fully the importance of a healthy, cheerful mental attitude of the wounded and

so provisions are made so that the soldiers do not feel themselves cut off from the front line or from life in the rear. Current newspapers, radio, films, lectures, talks, concerts, books, chess, dominoes, are all at the service of the wounded. Local adult and youth organizations send speakers, literature, and concert teams to entertain patients. People in towns and villages send letters and presents to the hospitals and visit the wounded. School children bring books, write letters dictated by the wounded men for posting home. The work to be done is heavy and varied, and in emergencies, free use of the civic spirit of the populace is to be had. To ensure an atmosphere of domestic comfort, warmth, and cleanliness, women and high school students attend hospitals regularly to wash and mend the linen, do the patients' darning, bring flowers to brighten up the wards, or even assist the nurses if a shortage arises. Soldiers who are granted leave on discharge from hospital also need care. The hospitals make it their business to find out in what sort of conditions the soldier will spend his leave, whether there is anything he needs, whether he feels out of touch with people. Here is how the Soviet people feel, (From Soviet War News, published by the Soviet Embassy in London) "We will help to save the lives, health, and strength of our wounded soldiers. We will surround them with so much care that they will feel how great for them is the love of people for whose happiness they have shed their blood."

Soviet science has contributed greatly to the world's knowledge of blood transfusion. Methods of conserving whole blood for three or four weeks have been developed. This makes it possible to obtain blood from donors at considerable distances from the front lines, for as much as thousands of miles. Provisions have been made to give blood transfusions as soon as possible after injury, when indicated. From 500 to 1000 cc. are given at whatever stage of hospital evacuation the wounded man may be, in field ambulance if necessary. Blood transfusions are organized in a broad network of institutions under supervision of the Central Institute of Blood Transfusion. Hundreds of thousands of donors voluntarily give their blood which is collected, conserved and shipped, often by plane, to the front lines for immediate use. Sometimes, when, as happens, the supply has run out, blood is donated by the medical personnel. The well-known surgeon, Professor Alexander Vishnevski, who has performed over 400 difficult operations in field hospitals, once drew blood from his own veins during

*(Continued on page 36)*

## VAGINAL VERSUS ABDOMINAL HYSTERECTOMY

WALTER JACOB REICH, M.D., F.A.C.S.,  
*Assistant Professor of Clinical Gynecology,  
The Chicago Medical School*

From our experiences in the Gynecological Clinic at The Cook County Hospital, in reviewing conditions present in a cervical stump following supra-cervical hysterectomy, we have come to the conclusion that whenever a uterus is to be removed it should be removed completely and not partially, the condition of the patient permitting. There is an ever-increasing number of cases of malignancy of the cervical stump, both of the portio vaginalis and of the endocervix, with marked discharges due to cervicitis. There is also an increased number of strictures and endocervicitis, bleedings and discharges from erosions, and of eversion and polyps of the stump. Many women are incapacitated and many more lose their lives because of the incomplete removal of the uterus.

Vaginal procedures have come to the fore in recent years and rightly so. In our experience with hysterectomies, the mortality and morbidity is markedly decreased by the vaginal as compared to the abdominal approach.

It is most important that an intelligent bimanual examination be made and that correlation between the results of the examination, the patient's history, laboratory findings and general physical condition be made.

### *Indications and Contraindications*

It must be borne in mind that there are certain pelvic conditions which, if present, are distinct contraindications to the vaginal approach for the removal of the uterus. These conditions are: first, residual pelvic inflammatory processes, regardless of the etiology, whether they are post-partum, post-abortion, gonorrheal, or tuberculous in nature; second, endometriosis and fixation of the tissues; third, malignancy with fixation; fourth, post-irradiation fixation; fifth, cases which have had a previous laparotomy with subsequent fixation. In our experiences a reoperative case with mobility of the uterus can have a vaginal hysterectomy.

The size of the uterus is not nearly as important a contraindication as the above associated pathology, as we will show later. A four to four and one half month pregnancy can be removed vaginally by means of morcellation.

The indications for a vaginal hysterectomy are the same as for abdominal hysterectomy: namely, condi-

tions of the uterus causing bleeding or pressure symptoms, or cases of prolapsus and procidentia which are more easily treated by the vaginal route.

### *Medical Preoperative Preparations*

Before proceeding with the actual technique, we should like to emphasize the importance of preparing the patient for the operative procedure. The patient should have a complete work-up, including detailed history, intelligent bimanual examination, complete systemic inventory and confirmatory laboratory examinations. When the patient's condition is such that she is a definite minimal operative risk we are ready to proceed. Here mention should be made that in the past few years we have paid considerable attention to building our patients up with the necessary preoperative transfusions and high vitamin diets. We have also made detailed studies of other systems such as the genito-urinary tract and the cardiovascular system and have had associated pathology corrected prior to proceeding with surgery.

### *Method and Choice of Anaesthesia*

We have been well acquainted with the fact that the choice of anaesthesia is most important and that each patient requires an anaesthetic which is most suitable for her, depending upon her basal metabolic rate, age, blood count, blood pressure, weight, and general systemic condition. Many of our patients are in the older age brackets and have certain cardio-renal changes which come with age, and also many residues of other systemic changes. It has therefore been our policy in the past to use such anaesthetics as direct local infiltration, ether by the open or closed method, cyclopropane, ethylene, and nitrous oxide induction. In the inhalation group we give the minimal amount of basal anaesthesia and the maximum of oxygen mixture. However, in some cases of local anaesthesia, the method was not entirely satisfactory due either to the extreme apprehensiveness of the patient or to the occasional difficulty in finding the correct cleavage planes as a result of the infiltration.

In regard to the inhalation group, we are of the opinion that, irrespective of the judicious choice of anaesthesia and the skill of the anaesthetist, there is always a small percentage of risk, especially in older women. The risk comes not so much as a direct result

of the administration of the anaesthetic, but rather a risk of postanaesthesia complications.

With these facts in mind, an anaesthetic was sought which might be more suitable in this type of surgery. We have found what we think is a most ideal anaesthetic for vaginal hysterectomy and we have used it in over fifty cases. The method we have been employing is that of sacral block. The anaesthetic is made by preparing a solution of 100 cc. of 1% metacaine in normal saline with  $\frac{1}{2}$  cc. of 1:1000 adrenalin. We have used 1% novocaine but prefer metacaine because of the earlier onset of anaesthesia, greater intensity of anaesthesia, and 50% greater duration. We prefer to use the metacaine in saline rather than sterile water because of the difference of the irritability of the solution. We usually inject 35 cc. into the caudal canal in doses of 5 cc., 20 cc., then an additional 10 cc. if necessary. The second sacral foramen on each side usually requires 10 cc., the third 3 cc., and the fourth 2 cc. A few of our cases require about 10 cc. of 2½% sodium pentothal intravenously, the discomfort apparently being due to traction upon the peritoneum. We have been using our regular preoperative medication of morphine and atropine, or morphine and scopolamine, and to date have had no anaesthetic complications, either immediate or latent.

#### *Newer Aspects of Sacral Block Anaesthesia*

Because of the discomfort experienced in a few cases, we are now also injecting the fourth and fifth lumbar and first sacral foramina with 5 cc. of the solution. Nembutal is also added pre-operatively so as to minimize the possibility of anaesthetic reaction because of the additional amount of solution used. To date we have had just a few of these cases, and therefore cannot draw any conclusions by comparison with our previous method of sacral block.

Of all the anaesthetics we have used in vaginal hysterectomy, the sacral block seems by far the most ideal. The method of administration is relatively easy except in a very adipose patient. The relaxation is ideal, and postoperatively these patients can be on the back-rest as soon as they return to bed. We believe the latter to be all-important in the older age category as it is a distinct factor in preventing pulmonary complications.

#### *Preoperative Preparations*

In addition to the exacting choice of anaesthesia, actual preparation of the patient is most important. The general systemic preparation has already been mentioned. Lately we have been using vitamin K in many patients, and there seems to be a distinct reduction in the amount of oozing, especially of the

vaginal walls. Pre-operative douches are very important, using any medication which will produce a high hydrogen ion concentration in the vagina. Substances such as lactic acid (one dram to one quart), plain white vinegar, boric acid, or in some instances sulfathiazole douches (eight grams to one quart of water) may be used for a week or two preoperatively.

The direct preoperative preparation is made as follows: the labia majora, labia minora, the region of the symphysis pubis, the lower portion of the abdomen, and the upper portion of the thighs and vagina should be carefully scrubbed for ten minutes with soap and water. This is followed by rinsing with alcohol and painting with merthiolate, mercresin, or any other antiseptic. Since we have discontinued using tincture of iodine we have noticed no skin burns and fewer infections.

#### *Operative Technique*

As to the actual operative technique, we prefer our patients with the buttocks slightly over the edge of the table and in a moderate Trendelenberg position. This facilitates the operative procedure and has a tendency, as in an abdominal section, to allow the bowels to fall towards the diaphragm.

We sew the labia to the towels and to the skin lateral to the labia. This in many instances obviates the use of lateral retractors. The anterior lip of the cervix is then grasped with a single toothed tenaculum. Extreme care should be taken not to include the bladder, which might readily be done especially when a marked cystocele is present. The sure way to prevent this is to place a metal catheter in the bladder which will show very definitely the distance the bladder comes down on the cervix. Two heavy silk sutures going through the anterior and posterior lips of the cervix replace the tenaculum. We prefer the silk sutures because they replace a cumbersome instrument, have a tendency toward definitely less traction on the uterus, and make the inversion safer (a bowel might be caught with the tenaculum). Pitocin is then injected into the anterior portion of the cervix, except in a marked cystocele when it is injected into the posterior lip. We have discontinued the use of pituitrin and use only pitocin (which does not contain the vasopressor substance), because of the absence of pituitrin shock, of rise in blood pressure, and of effect on the coronary arteries, and because of its equally effective oxytocic action. We are of the opinion that pitocin has a definite tendency toward decreasing the bleeding during this operative procedure.

A circular incision is made in the vaginal wall just

*(Continued on page 37)*

## THE AMAZING CURE

LOUIS P. PLZAK, M.D.

*Assistant Professor of Surgery,  
The Chicago Medical School*

*This is a story told by Dr. Plzak, recorded by a member of our staff.*

"Doctor, you must do something for my mother. The poor woman is the most unhappy person in the world. Several other doctors have seen her in the past three years, and they were able to do nothing for her. She has been especially bad for the past six months. She has had terrible headaches and dizzy spells continuously. She hasn't eaten in weeks because she can't keep anything down with the result that she's lost a great deal of weight. Can you do something, doctor?"

The doctor scratched his chin and pursed his lips. He carefully scrutinized the patient as she sat before him, and said, "I'll have a look at her, and then I'll be in a better position to tell you. Mrs. Jones, won't you step into the examining room, please?"

The young man sat nervously in the reception room and waited for the doctor to call him into the consulting room. The doctor had already been more than half an hour examining his mother, and he was beginning to become anxious. What could be taking the doctor so long? The other doctors spent just a few minutes with his mother and had all been able to make their diagnosis. This doctor must be either very thorough, or just uncertain. If only the doctor would come out!

The consulting room door opened and the doctor appeared, beckoning the young man to come into the consulting room.

"Your mother," the doctor said, "is a very sick woman. My opinion concurs with those of the other doctors who have examined her, and her condition is quite serious. She has a severe high blood pressure and needs an operation. However, her condition is so poor that it would be very dangerous to operate at this time. We must get her into better condition before we operate, but I'm afraid it would take months to do, and I cannot guarantee that her condition will improve."

"Doctor, the family has discussed the whole situation with my mother, and she insists that the agony is too great for her to bear. Do anything, doctor, as long as it helps. We all feel that the results will be worth the risk, because it's inhuman to permit her to suffer any longer."

"At times, doctor," said the mother, "I've been so

despondent over the agony and suffering that I've endured that I've been tempted to commit suicide. Believe me, the pain is enough to drive me to anything. Do whatever you think will help me, only help me! If you feel I ought to have an operation, I'll gladly submit, regardless of the risk."

The doctor sat back and thought a moment. Here was a woman with a malignant hypertension, a systolic pressure of over 300 (for that is a high as the mercury column will go) and a diastolic pressure of 220. Perhaps it would be better to treat the case medically to establish the physical findings and physiological state of the patient. That, he decided, would be his procedure.

\* \* \* \* \*

"Since I examined your mother two days ago I've become convinced that an operation would be the only way of giving her any relief. However, I must tell you now that the operation will effect only a temporary cure, and that the condition will, in all probability, return in a few years. I must also warn you again that an operation on a woman in your mother's condition is dangerous."

"Do what you think best, doctor. The credit for a successful operation will be yours; but rest assured that the responsibility for an unsuccessful one will not be on your shoulders."

The medical regime that the woman had been placed on did not improve her condition. Sedatives and vasodilators only succeeded in reducing her blood pressure an insignificant few points. However, her blood chemistry indicated that there was no extensive renal damage so that the immediate danger of uremia was not a factor. Yes, a section of the splanchnic nerves was the only logical procedure.

"All right, then. I'll operate on your mother tomorrow morning. Have her brought to the hospital to-night so that she can be adequately prepared."

\* \* \* \* \*

"How's the patient this morning?"

"I feel perfectly wonderful today, doctor. I have no headache, and I no longer feel nauseated. I find that I like the taste of food and it doesn't make me sick. The only pain I have is at the place where you operated. I can't remember the time when I felt as good as I do now."

*(Continued on page 35)*



## THE STORY OF BLOOD CHEMISTRY

BESS OSGOOD, M.S.,

*Assistant in the Department of Physiological Chemistry,  
The Chicago Medical School*

It is not generally recognized that blood chemistry is one of the most recently developed of all the sciences pertaining to medicine. Its general use as an aid in diagnosis and treatment is not more than thirty years old. In 1883, C. H. Ralfe in his text-book, "Clinical Chemistry", made the following observation. "Of all branches of pathological chemistry, less advance has perhaps been made in determining the changes which blood undergoes in disease than in any other direction. Some excuse may be offered for this apparent neglect, in the difficulty of obtaining blood in sufficient quantity for analysis, a difficulty that did not exist in days when bleeding was general. Also the methods of research until recently have been very defective."

Since the beginning of the twentieth century, more emphasis has been put on the collection of data on the chemical composition of the blood, particularly in America. The labors of Otto Folin, Stanley R. Benedict and Donald D. Van Slyke were preeminent in the development of blood chemistry as a tool for the clinician. Their work will be referred to again.

However, the story does not start with their work. The system of blood chemistry of necessity rested on a broad foundation of general biochemical knowledge whose building had been begun a century before.

If a date could be given as the birthday of physiological chemistry, it would most probably be the year 1826, when Justus von Liebig opened the first public chemistry laboratory at Giessen. Previous to 1800 most research had been done by isolated investigators working independently. In 1824 a new era began with the opening of the first public laboratory ever established, a laboratory of physiology at Breslau University, presided over by Purkinje. These two acts seemed like the opening guns of a vigorous campaign. In the next fifty years Germany, and then France, opened one laboratory after another, until no continental university was considered complete without one or more of these workshops.

Still the laboratories, then as now, were only tools. The increase of knowledge came from the minds of the great men who commanded the wealth of resources put at their disposal. To read the roster of the scientists of Europe during those years would require the rest of the space at my disposal—and I am supposed to be discussing blood chemistry. So

back to the subject, after just one more general comment. The science of medicine, profiting from the discoveries of all other sciences, made tremendous strides. It has been stated that in the third of a century from the founding of Liebig's laboratory in 1826 to the publication in 1858 of Virchow's doctrine of cellular pathology, medicine as a science made more progress than in the preceding sixty centuries.

Although Liebig was primarily an organic chemist, much of the experimentation in his laboratory at Giessen was in the field now called physiological chemistry. This was customary at that time. Although physiological chemistry has been an important department of research for over a century, it was not until the close of the last century that separate facilities were established for its study. A large part of the work had been done in laboratories of general or organic chemistry, physiology, pathology and clinical medicine. In 1872 came the first physiological chemistry laboratory founded by Felix Hoppe-Seyler at Strassburg. To Hoppe-Seyler also goes credit for the founding in 1877 of the first journal on the subject, "Zeitschrift für Physiologische Chemie."

The vigorous prosecution of physiological chemistry was confined largely to Germany and France until after the 1880's, but thereafter it spread to England and the United States. The early 1900's witnessed an outburst of interest and vigor in America that has never waned.

So much for a brief review of the development of physiological chemistry in general. There is no space to tell of the fundamental work of Liebig and Mulder, Emil Fischer, Kossel, Osborne, Levene, Loeb, and others, in establishing the nature and chemical make-up of the organic materials of life. Not until the chemical structure of the substances interesting the physiological chemist had been elucidated, at least in part, could the search for methods of detection and analysis be more than empirical.

The clinician before 1900 had little or no interest in blood changes in disease. Hoppe-Seyler, in his "Handbuch der Chemischen Analyse", in 1875 (4th edition), stated that the only determinations of any worth on the blood were hemoglobin, albumin, red and white cells, and, perhaps, the total salt content. The text book of Hammarsten Mandel, published in

1898, had 127 pages devoted to urine study, and 68 pages to blood. Novy's text book, also of the year 1898, had 128 pages devoted to urine, and but 20 to blood.

Gradually men came to see that change in the urine might be caused by changes in the blood, that increased excretion of a product might be due to such an accumulation of that product in the blood that it "spilled over" into the urine. This change of viewpoint was necessary to progress in understanding the processes involved. This new emphasis, coupled with the improved methods of analysis which allowed the use of smaller quantities of blood, was not only responsible for the collection of accurate data on blood composition, but aided materially in the development of new methods of treatment of disease.

So much credit is due to Otto Folin for his contributions, both to the conception of the importance of blood studies and to the methods for making these studies, that a brief discussion of his work is worth while. In 1906 the Harvard Medical School moved into its new building, where large laboratories had been provided for all the sciences, and Dr. Otto Folin was called to take the professorship of biological chemistry. Before that Dr. Folin had been research chemist at the McLean Hospital of Waverly, Mass., and even before that he had had a broad training and experience at the University of Chicago and at the Universities in Germany and Sweden. His work covered a wide range of topics, and he published voluminously in the fields of nutrition and protein metabolism, urine and blood chemistry. But he is chiefly remembered today for the excellence of his work in devising new and quantitative methods for the study of biochemical questions. In 1905 and 1906 he published a series of urine studies; in 1912, with other authors (Flanders, Farmer, Denis) methods for hippuric acid, and total nitrogen in urine, and non-protein nitrogen, urea and ammonia in blood were published. In 1919 came the famous publication, with Hsien Wu, "A System of Blood Analysis", introducing for the first time a preparation of a protein-free blood filtrate that could be used for several analyses.

The tungstic-acid method is used more universally than any other single method for deproteinizing blood, at least in America. Other protein precipitants had been used, such as alcohol, acetic acid and heat (the acetic acid being used to bring the protein to the isoelectric point), picric acid, and trichloroacetic acid. Some of these are still in use and are satisfactory as now worked out, but early investigators found the problem of deproteinizing a vexing one. Too little

was known about the nature of proteins. (Today the protein chemist still says, "Too little is known about the nature and structure of proteins".)

The work of Benedict deserves mention here. He contributed greatly to the knowledge of nitrogenous constituents of blood and urine, especially of uric acid, creatinine, and creatine. However, perhaps his chief contribution to methods was his publication in 1913 of the first simple colorimetric determination of glucose in blood. That work will be referred to again.

Dr. D. D. Van Slyke, research chemist since 1907 at Rockefeller Institute for Medical Research, has worked in many fields. During his studies on the role of protein derivatives in physiology, he developed a method for the determination of amino acids which has been of great value to research workers. His most famous method is the one, published in 1915 with Stillman and Cullen, on the  $\text{CO}_2$  combining power of blood. Bancroft and Haldane in England had done much valuable work at the beginning of the century, but the methods then used were not adapted to clinical procedure. Most clinical laboratories today possess a Van Slyke  $\text{CO}_2$  combining power apparatus.

Another type of gas apparatus in wide spread use today was described in 1924 by Dr. Van Slyke. It was used originally for manometric determinations of oxygen,  $\text{CO}$ , and  $\text{CO}_2$  in blood samples, but it has also been applied successfully in determinations of eight or nine other blood and urine constituents.

In 1922 Dr. Van Slyke and his equally famous collaborator, Dr. John Peters of Yale University, published their "Studies of Gas and Electrolyte Equilibria in Blood". These and other studies in the same field by a succession of outstanding chemists are indicative of the vast amount of effort of purely chemical nature that was expended before any clear conception was gained of the acid-base balance of the blood and the renal mechanisms controlling it. The gains to clinicians from this work have been tremendous, especially in their work on diabetes, nephritis, and cardiovascular disease.

It would be tedious and uninspiring to the average medical student to read the history of the studies made on all the constituents of blood. However, a perusal of the story of blood glucose might be worth while. The ancients knew that under certain pathological conditions the urine had a "wonderfully sweet taste". In 1775 Dobson first recognized that blood may contain a sugar-like substance, but it remained for Claude Bernard, the great French physiologist, to prove the presence of sugar in normal

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## PERSISTENT URACHUS

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Persistent urachus is probably much more common than one would be led to believe. Up to 1941, only about 150 cases had been reported in the literature. Obviously, many times this number have been overlooked, both in the operating room and at the necropsy table, and, as will be pointed out later, because of the fact that most of the reported cases have been extra-peritoneal, rather than intra-peritoneal, they are not recognized. The fact that one writer has reported seven cases, and another four cases, should indicate that one has to bear the condition in mind in order to seek it out, and recognize it when it does exist.

The earliest reported case was one by Cobral, in the year 1550. This occurred in a female, age 18, and presented itself as an umbilical fistula. In the cases reported, the incidence in males over females was in a ratio of 2 to 1.

### *Embryology:*

The allantois is one of the first structures differentiated in the embryo, and is seen as a small sacculus in the yolk sac. After the cloaca is formed, the allantois can be seen springing from the cloaca, and running through the umbilical cord to the placenta. Later, the lower portion of the allantois develops into the urinary bladder. The intra-abdominal portion of the allantois is called the urachus, while the allantois proper, including the urachus, runs from the top of the bladder to the placental attachment. Normally, at birth, both the urachus and the allantois are fibrinous cords. Failure of the urachus to close may cause a frank urinary umbilical fistula at birth, or may lead to trouble in later life.

Normally, the urachus is extra-peritoneal in all of its course, running between the peritoneum and the posterior rectus sheath. In the writer's case, however, which will be reported below, the urachus was intra-peritoneal in its entire extent.

There is another aspect of this condition which has not been dwelt upon in the literature, namely, the possibility of a familial tendency. A few weeks after the discovery of the case to be reported here, the writer operated upon a ten year old nephew of the patient herein reported, for an acute appendicitis, and in the course of a routine intra-abdominal exploration, a thin fibrous cord was discovered, running from the dome of the bladder to the umbilicus. Four days later, the mother of this child (a sister of the patient in this

case report) also developed an acute appendicitis. She gave a history of a periodic "wetness" around the umbilicus for several years. At operation, no intra-peritoneal urachus was found, and if one was present, it was probably extra-peritoneal. Her condition did not seem to justify further exploration. It will be interesting to see if she later develops any further symptoms referable to a possible persistent urachus.

*Possible Types of Urachal Pathology:*

1. Exstrophy of the urinary bladder: The bladder may open at a high level, due to the high attachment of a patent urachus. This is usually present at birth, and easily recognizable.

2. Congenital patent urachus: This is usually seen after the umbilical cord sloughs off. It may be seen on the day of birth, or not until several months later. A few rare cases occur in adult life, due to vesical neck obstruction, prostatic hypertrophy, etc.

3. Patent urachus with a patent omphalo-mesenteric duct: This is rather rare, and only two such cases have been reported.

4. Malignancy: Cullen has reported 3 cases of carcinoma of the umbilicus, in all of which there was a history of previous umbilical infections, with little or no treatment. A few cases of umbilical sarcoma have also been reported.

5. Small urachal cysts: These are of little importance, and cause relatively few symptoms. They are consequently often overlooked.

6. Large urachal cysts: These are more frequently seen, and they vary in size from that of an orange to one reported by Rippman weighing 100 pounds, and containing 52 liters of fluid.

7. Abscess of the urachus: This is the most common form of urachal disturbance, the infective material entering either from the umbilicus, or ascending from the bladder.

8. Cavities between the umbilicus and the bladder: These may be of varying sizes, and often precede the urachal abscesses.

9. Stones in the urachus: This is a rare type of pathology, and only 4 cases have been reported from 1850 to 1932.

10. Tuberculosis of the urachus: This is one of the rarest of all types of urachal pathology. Only 1 case has been reported in the literature, by Eastman, in 1915. This was treated by dissection, with recovery.



Of the 154 cases of persistent urachus which had been reported up to 1941, 70 or 49% were in children under 13 years of age.

#### I. LARGE URACHAL CYSTS:

These are of variable size, from that of an orange, up to a sac containing 52 liters of fluid. They are characterized clinically by a gradual enlargement of the abdomen in the midline, between the umbilicus and the symphysis pubis. A mass can usually be palpated. There is discomfort due to tension upon the abdominal wall. One must rule out a distended urinary bladder, ovarian cyst, ascites, and appendiceal abscess. The treatment consists of removal of the cyst cavity down to the bladder, with inversion of the stump into the bladder. It may be necessary to remove the umbilicus.

#### II. URACHAL CAVITIES:

These may connect only with the umbilicus, and not with the bladder (blind external), or only with the bladder and not with the umbilicus (blind internal or accessory bladder), or with both the umbilicus and the bladder (complete).

The symptoms of this type are usually those of cystitis or pyelitis, with increased urinary frequency, a sensation of straining, and the presence of blood, pus, or both, in the urine.

They may disappear spontaneously, following a sudden gush of fluid from the umbilicus, only to reappear at a later date. In this type, there may be passage of all or some of the urine from the umbilicus. One must differentiate a distended bladder, ovarian cyst, and tumors or cysts of the abdominal wall.

The best treatment is to open and drain the sac, and then by dissection, to separate the sac from the bladder, remove the sac with the umbilicus, and invert the stump into the bladder.

#### III. URACHAL ABSCESS:

In this type, the umbilicus is nearly always bulging, inflamed, and discharging, and it is nearly always the result of secondary infection of an urachal cyst or cavity. There is usually pain, more marked on pressure, radiating downward from the umbilicus to the bladder, some intermittent umbilical discharge, and the systemic signs of infection, malaise, leucocytosis, fever, and occasionally, nausea and vomiting.

The differential diagnosis of this condition must include acute appendicitis (onset more abrupt and severe, pain more right-sided), pelvic abscess (history, vaginal or rectal findings), and distended bladder (can be emptied by catheter).

The treatment recommended is that of an abscess anywhere in the body, namely, incision and drainage,

which can be done either under gas inhalation anaesthesia or intravenous anaesthesia, preferably using Pentothal Sodium. It is best not to attempt to remove the sac because of the danger of peritonitis.

#### Case Report:

L. T., white male, age 38, was first seen on October 24th, 1940. He complained of umbilical soreness, of one week's duration, and of a small amount of foul smelling drainage from the umbilicus. The pain in the umbilicus radiated downward toward the bladder, and he stated that he felt "soreness" in the suprapubic region at urination. Examination revealed a well nourished male, not apparently acutely ill. The general examination was essentially negative, except for the abdomen. The umbilicus was reddened, and a thin, foul smelling exudate was present. There was marked tenderness to even light pressure over and around the umbilicus. A tentative diagnosis of infected persistent urachus was made, and he was instructed to apply warm, moist fomentations, to rest in bed, and to take aspirin for the control of the discomfort. He returned after five days, stating that he felt about the same as before. At examination, the umbilical infection was even more marked than before, and he was advised that surgical treatment was advisable. He entered the Loretto Hospital on October 31st, 1940. By this time, there was an area of redness and swelling around the umbilicus which measured 6 inches in diameter. Blood examination revealed the following: R.B.C. 4,130,000; W.B.C. 15,000; Lymphocytes 25%; Large Monocytes 2%; PMN's 73%; Hemoglobin 85%. The urine was clear, Sp.G. 1.030, Acid, negative for albumin, sugar and acetone, occasional WBC, a few epithelial cells, and bacteria, 1 plus. Temperature on admission, 101°F, pulse 80, respirations 20.

Operation was performed by the writer on the following morning, Nov. 1, 1940. A long right sided para-umbilical incision was made and the peritoneum was bulging when exposed. When the peritoneum was opened, a large quantity of greenish, foul smelling pus gushed out. Exploration revealed the presence of a large abscess cavity, bounded ventrally by the parietal peritoneum, superiorly by the transverse colon and the *ligamentum teres hepatis*, medially by the large, distended urachus, and laterally by coiled loops of small intestine and omentum. A large, indurated tubular structure, identified as a persistent urachus, about 1.5 cm. in diameter, ran from the umbilicus to the dome of the bladder. The round ligament of the liver was also markedly enlarged and

(Continued on page 23)

## WRITING MEDICAL PAPERS

MARGUERITE E. CAMPBELL, B.S.,

*Librarian,*

*The Chicago Medical School*

Many people have the desire to put into print the results of research, original investigations, and unusual cases, but unfortunately do not possess the art of writing. For these individuals, there are a few general but essential rules one can lay down that will be of material assistance in preparing papers that convey information accurately, clearly, and concisely, and yet adhere to the forms of present day usage.

The standards one must bear in mind in writing papers are:

1. The author should present a complete review of the facts pertaining to any particular subject to enable the reader to deduce conclusions of importance.
2. The paper should contain a description of the principle and the method of procedure.
3. The paper should contain results of research.
4. The paper should contain a discussion of the results in the light of present knowledge.
5. The paper should contain the conclusions of the author.

\* \* \* \*

An outline, as simple or as elaborate as the author desires should be made before composing the article. Usually, the more complete the article is, the more detailed the outline will be. It is advisable in reviewing the literature on the subject to make notes on cards. These should be arranged first under the main head and then under minor heads in a logical working order.

From this, a definite framework is obtained around which the paper can later be constructed. The outline should have the following:

1. Introduction
  - a. Object
  - b. Character and extent of original data.
2. Historical notes
  - a. A summary of contemporaneous writers in the same field.
  - b. Their contributions.
3. Methods and material
  - a. An exact statement of the kind and amount of investigation
  - b. Methods and technique used.
4. Results
  - a. Detailed discussion of investigation, procedure or experimentation.

### 5. Summary and conclusions

- a. A brief review of the work done.
- b. Conclusions drawn, using only salient points (This last is often not only the first but the only part of a paper read.)

### 6. Bibliography

A suitable title, suggestive sub-heads, a clear summary, and cogent conclusions represent the framework of a well constructed paper and are usually more important than the average medical author realizes. The title should be brief but descriptive. The author should give his article a name that will distinguish it for the present reader as well as for future reviewers and bibliographers. Thousands of excellent papers are lost to posterity because their titles do not designate the subject, or are trite and dull. A paper with a title such as, "Brain tumor of psychomotor area causing Jacksonian and general convulsions, visual hallucinations, somatic aberration, mental and physical", is scarcely necessary; everything has been said in the title.

If subtitles are necessary, care should be exercised in their choice as they assist the reader in locating the points in which he is especially interested.

A good style is direct, plain, and simple. Long difficult words should not be used when short simple ones convey the same meaning. A florid style full of polysyllabic, metaphorical phraseology will distract the readers' attention; high sounding phrases that really mean nothing but appear to be fine writing should not be used. The medical vocabulary of today is by no means scant or poor and the writer will do well to confine himself to words already in established use. One should hesitate to give new meanings to old words or to invent new words and phrases.

A great flood of words is apt to make reading tiresome, mars diction, and wastes time. One should write the paper in its entirety and then delete unnecessary extraneous material. Example: "(I do not hesitate to say that) in my opinion the gland (in question) in this case should not be removed." Words in parentheses are space-taking and add nothing to the sentence.

One should carefully watch for grammatical errors and should conform with the general rules of capitalization and punctuation. The present trend in writing is toward the use of open punctuation which con-

sist in the avoidance of all marks not required by the sentence structure.

The requisites for acquiring a good literary style are voluminous reading and diligent practice in writing. The writer should carefully avoid exaggerations, magnifying his own observations or minimizing those of others. At the same time, he should be precise in his choice of words. This will convince the reader of the author's careful thinking. A dignified orderliness in the arrangement of clauses, sentences, and paragraphs and a definite and logical sequence in the statement of facts, theories, and deductions make for a good style. This may stimulate and inspire the reader toward making more extended investigations himself.

A paper should be brief and clear, permitting the presentation of only the essential points. The summary may appear either at the beginning or at the end of the article. Only papers of more than 1500 words involving much description of detail and technique, and those papers that aim at a complete survey of the literature on a particular subject need summarizing. A brief digest in the introductory paragraph is often stimulating and will interest many readers in the contents of the article. The conclusions and deductions drawn from the material experiments, tabulations, tables, and data should be set forth clearly and concisely. The conclusions should be condensed and should clearly show the writer's premises and deductions.

One should not overlook the importance of intelligible case histories. Time, person, and number should not be mixed in writing histories and abstracts. The publisher usually has a regular procedure which one can follow.

One should take care that all references are complete and accurate. References to original articles should be made and not from previous lists of references unless they have been verified. This will prevent the continued propagation of a wrongly cited reference. If it is impossible to see the original article or if it is an abstract of an article to which reference is made, one should be sure to make this clear.

Illustrations should illustrate. When used, they should be identified and correctly numbered by a paper label posted on the reverse side of the illustration. The label should also indicate where each picture is to be inserted. Lettering on illustrations should appear within the borders of the pictures and all legends to appear under them should be numbered to correspond. The publisher should receive all illustrations flat, not rolled.

In making charts, differences should be indicated by the type of line used rather than by different colors; that is, the lines should be heavy, light, broken, continuous, dotted, and so forth.

The writer who realizes his own limitations and the fact that anything can be done better than it has been done will be his own most severe critic. Sir Thomas C. Allbutt said that it was his custom to make at least four drafts of a manuscript before considering it ready for the publisher:

1. A rough draft from one's notes.
2. Delete redundant words and phrases.
3. Move sentences to a better position if necessary. Recast sentences and paragraphs; ornamental or figurative passages should be modified or omitted. Make a choice of the exact word to be used.
4. Make final additions and revisions. Verify all data, statistical and otherwise, charts, illustrations, headings, legends and references. Eliminate inaccuracies in the discussion, in names, in dates, or wherever they may occur.

If a writer is not well known he should sign his full name or follow a certain form consistently. His name and address should appear on the upper right hand corner of every sheet of his manuscript, each illustration, chart, diagram, or table. The title of the article, the author's name (and his degrees and appointments, if desired) and address should be given at the beginning of the manuscript. Each page should be clearly numbered; headings should be placed in the order of their importance.

Tables, bibliographies, legends of figures and illustrations, and all notes should be written under their correct heading on separate sheets of paper for the convenience of the printer. The conclusions and summary should also be on separate sheets and in this form can be used as abstracts by the various journals that abstract articles. Mark the reduction in size to be used on the illustrations. Indicate all paragraphs clearly. The word "end" should be placed at the bottom of the last page of the manuscript.

*A few don'ts.*

1. Do not write unless you have something to say, both instructive and original.
2. Do not go back to the Dawn of Man and review the literature of your subject to date.
3. Do not fail to go over the manuscript carefully and ruthlessly delete whatever is unnecessary.
4. Do not forget that long sentences are awkward and ambiguous.
5. Do not forget to give credit where it is due.

# MEN IN SERVICE



1ST LIEUT. HERMAN J. HORVITZ

*We are proud to present this list of members of our alumni and faculty who have joined the armed forces since our last issue. We will make further announcements, as news reaches us.*

Harry J. Barnett.....	1940	1st Lieut.	58th Quartermaster Regiment, Stockton, California
Isidore Brill.....	1936	1st Lieut.	M. C. Morrison Field, West Palm Beach, Florida
Walter E. Block.....	1929	1st Lieut.	M.C., Co. C., 30th Batt., Camp Grant, Illinois
Thaddeus J. Chrzan.....	1941	1st Lieut.	M.C., U. S. Army
Avron E. Comarr.....	1940	1st Lieut.	M.C., 3rd Armored Division, Indio, California
August F. Daro.....	1925	Major	M.C., Army Air Corps Madison, Wisconsin
George E. Fisher.....	1938	1st Lieut.	M.C.
Bernard S. Freedman.....	1938	1st Lieut.	M.C., Camp Grant, Illinois
Leon M. Hart.....	1939	1st Lieut.	M.C., Camp Davis, N. C.
Carl B. Herman.....	1917	Colonel	Med. Res., Commanding Officer, 112th General Hospital
Herman J. Horvitz.....	1938	1st Lieut.	M.C., Camp Grant, Illinois
I. Daniel Hosman.....	1933	1st Lieut.	M.C., Army Medical Corps
Norman W. Jonas.....	1939	1st Lieut.	M.C.
Lawrence B. Kalom.....	1940	1st Lieut.	M.C., 451st Coast Artillery, Camp Stewart, Georgia
Jacob Leftoff.....	1939	1st Lieut.	M.C., Camp Pickett, Virginia
Frank Lock.....	1926	1st Lieut.	91st Medical Batt., Camp Livingston, Louisiana
Edward J. Martens.....	1941	1st Lieut.	M.C., Selfridge Field, Mich.
Paul S. Nierenberg.....	1937	1st Lieut.	M.C., 405th Coast Artillery Batt., Fort Sheridan, Illinois
Samuel C. Noto.....	1937	1st Lieut.	Army Air Base, Reno, Nevada
H. H. Paolozzi.....	1938	1st Lieut.	M.C., Camp Claiborne, La.
Morris Peterson.....	1938	1st Lieut.	M.C.
Samuel Pilchman.....	1939	1st Lieut.	M.C., Camp Grant, Illinois
A. L. Schneider.....	1918	Major	M.C., Alaska

George S. Schwerin.....	1940	1st Lieut.	Battalion Surgeon, 914th Field Artillery, 89th Infantry Division, Camp Carson, Colorado
Henry R. Shear.....	1940	1st Lieut.	M.C., 815th Tank Destroyer Battalion, Camp Cooke, Calif.
S. Andrew Silverman.....	1934	1st Lieut.	M.C., Army Air Corps, Westover Field, Chicopee Falls, Mass.
Eugene J. Sodaro.....	1937	1st Lieut.	O'Reilly General Hospital, Springfield, Missouri
Frederick Spector.....	1940	1st Lieut.	M.C., Camp Barkeley, View, Texas
Leonard H. Weisskopf.....	1937	1st Lieut.	M.C., Camp Grant, Illinois
Norman Yosko.....	1938	1st Lieut.	M.C., Camp Livingston, La.

#### FACULTY

Major Alex B. Ragins, Associate Professor of Pathology  
 Captain Albert F. Rosenblum, Associate Professor of Physical Diagnosis  
 1st Lieutenant Herbert Udesky, Instructor in Clinical Surgery  
 Major Peter Gaberman, Assistant Professor of Medicine  
 Major Jack D. Kirshbaum, Assistant Professor of Pathology

#### SEX AND THE ERRING WAIF

Sex sat back and grinned  
 At the wondering little boy,  
 And said, "You must not stare at me, my son  
 Even tho' it is a lot of fun.  
 I am," he said, (and here he made a wry face)  
 "A ghastly joke perpetrated upon the human race.  
 I am—so that you may be  
 And when you are  
 Well then—  
 You belong to me.  
 It's simple you see."

Then Sex gestured to the little boy  
 Who stared  
 Wide-eyed and frightened.  
 The grinning satyr gestured crudely—  
 Made grotesque motions with his body,  
 And the little boy laughed with glee,  
 Held out his soft white hands.

B. LIEBSCHUTZ.

\* \* \*

BUY WAR BONDS  
 AND STAMPS

#### BALLAD OF THE RELUCTANT LADY

Whither away my merry lass—  
 Whither away, my dear  
 Shall we hark to the park  
 To kiss in the dark  
 NO— . . . not so quickly I fear.

Whither away, my beautiful one  
 Whither away, my dear  
 Shall we not our passion expend  
 Bring our romance to a glorious end.  
 Oh, good God—No. Heaven forfend!

We shall walk thru the moonlit nite  
 Keep our romance honor bright.  
 We shall clutch convulsive hands  
 And each shall take a firmer stand.

While within each breast a heart will prance  
 And sigh regret for lost romance  
 Each shall remember a happier day  
 Of joyous laughing lover's play  
 And wonder why, one day, Love was denied.  
 Then cease to wonder . . . and in desperation  
 Curse our stupid pride.

B. LIEBSCHUTZ.





It occurred to us just the other day as a passing thought, that few of us appreciate the role which the clinic plays in our modern social structure. As medical men whose attention is focused upon the pathology which a clinic patient presents, we are prone to forget that this is a segment of a moderately large population which relies upon medical-social agencies of varying size and character for the maintenance of general health.

We are, however, proud to take our stand among those gallant groups—a veritable domestic army—into whose care the health of the many has been entrusted. Four mornings a week, The Chicago Medical School Pediatrics Clinic opens its door to a motley squalling crowd of "little people" whose vocal powers are only excelled by their photogenicity. But a moment later, it seems the doors of numerous examining rooms have swallowed them up.

\* \* \* \*

In our clinic, a file is established for each new child patient who is admitted, whether it be for a routine physical examination, for immunization, or for complaint of present illness. A carefully recorded history, present and past, including pertinent data regarding birth, development, feeding, type of diet, past illnesses and immunization, will thenceforth always be available on successive visits.

This initial visit of a child sets into motion the administrative machinery which will assure adequate medical care for his or her whole family—since a follow-up of families is routine in our clinic. One might, imaginatively, regard the clinic as a gigantic general practitioner whose fatherly eye is continually directed toward maintaining the health of the underprivileged of the community.

\* \* \* \*

Foremost in the minds of the clinic pediatricians lies the point of maximal importance in child care—

the maintenance of normal health and development—and so the clinic presents a regular program for prevention of childhood diseases. Two main points are emphasized: Adequate diet and Immunization. Both are important.

Each infant receives a carefully calculated formula—when artificial feeding is indicated. Breast feeding is instituted when possible. A wealth of clinical knowledge enters into a plan of continued care, with frequent visits and change in diet when necessary. Each mother is instructed to bring her child to the clinic at the first sign of gastro-intestinal upset, so often the forerunner of infection in children, and yet so often functional and requiring just a change in diet. Prescribed diet ceases when the child is two years of age—but verbal instructions continues for as long as necessary.

Perhaps an even greater service of the clinic to its child patient is an extensive immunization program which consists of the following:

1. Smallpox Vaccine, age 4-6 months.
2. Whooping Cough Vaccine, age 3-6 months
3. Diphtheria Toxoid, age 8-9 months (3 treatments at 1 month intervals)
4. Schick Test—(following four months after the last toxoid treatment)

When required by the patient, the following are also administered:

1. Whooping Cough Vaccine for Treatment
2. Scarlet Fever Vaccine or Convalescent Serum
3. Diphtheria Anti-toxin
4. Dick Test

Upon admission to the clinic, each child receives a routine Von Pirquet Test. If tuberculosis is suspected, a Mantoux test using 1:1000 dilution is administered. In highly suspicious cases—concentrations up to 1:10 may be used, if higher dilutions give negative reactions.

Venereal disease is vigilantly watched for. Routine urethral or vaginal smears are taken from each entering child. All positive cases are subject to family follow-up.

\* \* \* \*

Pediatricians have often said that the work is its own reward, and one might well be accused of triteness in repeating it. We have therefore reproduced a few enjoyable moments for your perusal. Judge for yourself!!



WAITING ROOM



INTERVIEW WITH SOCIAL WORKER



ROUTINE BLOOD EXAMINATION  
IN LABORATORY



PROGRESS!



ROUTINE PHYSICAL ON ADMISSION



COMPLETELY EQUIPPED X-RAY LABORATORY

THE QUARTERLY



CLINIC PHARMACY



## A REVIEW OF THE DIFFERENTIAL DIAGNOSIS OF JAUNDICE

ERNST LÖFFLER, M.D.,  
*Associate Professor of Pathology,  
The Chicago Medical School*

A yellow discoloration of the skin and the visible mucous membranes, caused by deposition of bile pigment, is always due to a disturbance by the bile-pigment metabolism.

The disturbance may be due either to changes in the prehepatic bile pigment metabolism, intra-hepatic disturbances, or may be brought on by changes in the post-hepatic biliary passages. We have, therefore, three types of jaundice:

- (1) The pre-hepatic hemolytic jaundice
- (2) The post-hepatic obstructive jaundice
- (3) The hepatic parenchymatous jaundice

The differential diagnosis, especially of the 2nd and 3rd forms, is, in many clinical cases, rather difficult. However, even a superficial knowledge of the bile pigment metabolism and its alterations may help in the differentiation of the "medical" parenchymatous jaundice from the "surgical" obstructive jaundice. Often the final decision for or against surgery will depend on the knowledge of the following few physiological facts.

Hemoglobin is transformed to bilirubin by the reticulo-endothelial cells of the liver sinusoids and the reticulum cells of the spleen. The bilirubin formed is in some association with protein, an association that is, as yet, not fully understood. This bilirubin does not pass into the urine and is found to give the characteristic color reaction of bilirubin (van den Bergh's diazo-reaction) only if the afore-mentioned association with protein is severed, e. g. by alcohol precipitation. This is the basis for the so-called "Indirect van den Bergh" reaction.

This bilirubin, called hemobilirubin, is taken up by the bile capillaries. On the way through the liver cells, the association with the protein is destroyed and the bilirubin in the bile capillaries, known as cholobilirubin, does pass into the urine. If present in the blood, cholobilirubin gives a direct van den Bergh reaction, i.e., without alcohol precipitation.

Cholobilirubin reaches the intestine by way of the biliary passages and is here almost completely reduced to urobilinogen by bacterial action. This urobilinogen is responsible for the brown color of feces. Some of the urobilinogen is reabsorbed from the intestine into the bloodstream, the greater part of this reabsorbed pigment being taken up by the liver cells and excreted

as such into the bile capillaries (Enterohepatic circulation). Only a small part remains in the blood stream and is excreted through the kidney, as is mentioned above.

Thus, under normal conditions, small amounts of urobilinogen are found in the urine, but no bilirubin.

"Hemolytic jaundice" may exist alone or in combination with splenic tumor and anemia, or may be a symptom of a disease associated with blood destruction, e.g. pernicious anemia, septicemia, bacterial endocarditis, or intoxication with hemolysing drugs, as sulfonamides.

In a hemolytic jaundice there is an increased amount of hemoglobin liberated. Consequently, much more hemobilirubin than normal is formed by the reticulo-endothelial system, causing a marked jaundice. However, since the hemobilirubin does not pass into the urine, the jaundice is acholuric, and the van den Bergh reaction is indirect.

More hemobilirubin than normal is taken up by the liver cells and, therefore, an increased amount of cholobilirubin will be found in the biliary passages and the intestine. Much more urobilinogen is formed in the intestine, the feces are dark (pleochromia), more urobilinogen than normal is reabsorbed and consequently much more urobilinogen appears in the urine—despite the absence of bilirubin.

"Obstructive jaundice" is due to a stone, tumor, or a scar in the biliary passages, and usually requires surgical intervention. The normal amount of hemobilirubin is formed and is taken up by the liver cells. The cholobilirubin, however, is prevented from entering the intestine, due to the obstruction. Above the obstruction the biliary passages dilate, as do the bile capillaries. These latter extend, forming ramifications between the liver cells. The ramifications also dilate and may finally break into the interstitial spaces around the liver cell cords, thus producing a communication between the bile capillaries and the interstitial spaces. Through this communication cholobilirubin regurgitates into the interstitial spaces. These spaces are drained by the lymphatics, and it is through these that the cholobilirubin enters the blood stream. It will appear in the urine, and will give a direct van den Bergh reaction.

If the obstruction is complete, no bile will enter the intestine, no urobilinogen will be formed, no urobilinogen can be reabsorbed and none will be excreted into the urine, despite the presence of a high amount of bilirubin. In this case the feces will be clay-colored.

"Parenchymatous jaundice" is due to damage to the liver cells themselves and may occur in acute hepatitis, arsphenamine hepatitis, or in progressive stages of cirrhosis. The wall of the bile capillaries is formed by liver cells. If these cells are damaged, they lose contact with their neighbors and again a communication develops between the bile capillaries and the interstitial spaces. Here, no dilatation is present, but rather a defect. Again cholebilirubin regurgitates into the blood causing the presence of bilirubin in the urine, and a direct van den Bergh reaction. However, some cholebilirubin enters the intestine, some urobilinogen is formed, and the feces are not acholic. Some urobilinogen is absorbed but the entero-hepatic circulation is impaired due to the liver damage. Therefore, it is not taken up from the blood stream by the liver cells. It is because of this that despite the reduced urobilinogen formation, an increased amount appears in the urine, together with a high amount of bilirubin—providing the hepatitis is not too severe.

From these statements it can be concluded that a simple qualitative urine analysis for bile and urobilinogen will usually give more information as to diagnosis of the jaundice, or indication for biliary surgery, than the rather elaborate liver function tests. If, in a patient with jaundice, despite much urobilinogen, no bilirubin is found in the urine, the jaundice is immediately classified as hemolytic in type. On the other hand, if with much bilirubin, no urobilinogen is found, an obstruction has to be assumed in the biliary passages—this being a case of surgical, or obstructive, jaundice. And finally, in parenchymatous jaundice, bilirubin as well as a high amount of urobilinogen is found.

The van den Bergh reaction runs parallel with the bilirubin excretion in the urine and is, therefore, often superfluous. In both obstructive and parenchymatous jaundice, therefore, we get a direct van den Bergh; in hemolytic or acholuric jaundice it is indirect.

*"A doctor must be a traveler because he must inquire of the world. Experiment is not sufficient. Experience must verify what can be accepted or not accepted. Knowledge is experience . . ." Paracelsus.*

## PERSISTENT URACHUS

*(Continued from page 15)*

indurated. Since a certain degree of peritonitis was already present, a decision was made to resect the urachus, rather than only to drain. The transverse colon, omentum and small intestine were freed after the pus was aspirated. A portion of the indurated omentum was resected, along with enlarged mesenteric lymph glands. The entire tubular urachus was resected from the umbilicus to the dome of the bladder, the stump inverted into the bladder by a purse-string suture, and the area peritonized. A portion of the indurated ligamentum teres hepatis was also resected. The abdomen was closed without drainage. He ran a rather stormy post-operative course for seven days, the temperature fluctuating between normal and 102.4°F. An acute bronchitis with severe cough complicated the picture, and due both to the infection and the strain upon the abdominal wall from the cough, the upper portion of the wound broke down on the fourth post-operative day. He continued to drain for about two weeks, and the wound ultimately closed, but due to the fascial separation, an incisional hernia resulted. He left the hospital on Nov. 20th, feeling well, and remained well, with no further discharge from the umbilicus. He re-entered the Loretto Hospital on September 15th, 1941, for repair of the incisional hernia, and aside from a superficial wound infection, made an uneventful recovery. When last seen, on Dec. 12th, 1941, he felt well, the hernia was fully healed, and no umbilical discharge was present.

*Summary:*

Persistent urachus is a developmental defect due to incomplete or imperfect closure of the embryonic allantois and urachus. The defect may be present at birth, manifesting itself as an exstrophy of the bladder, or it may not give symptoms for a period ranging from ten or twelve years up to thirty or forty years. There are ten possible types of urachal pathology, but the most common are urachal cavity, urachal cyst, and urachal abscess. Treatment should be directed at complete dissection with inversion of the stump into the bladder, when possible, or, in the case of urachal abscess, possibly only incision and drainage. The umbilicus may or may not be removed at operation.

That there may be a familial tendency toward this condition is brought out by the fact that not only the patient whose case history is herein reported, but his nephew, and probably also his sister all had this interesting condition.

*(Continued on page 29)*

## ABSTRACTS

PRIMER ON ARTHRITIS, *American Committee for the Control of Rheumatism*, J.A.M.A., July, 1942, 119-14.

The American Committee for the Control of Rheumatism presents its second "Primer on Arthritis" which, in very clear and concise form, gives an introduction to the arthritides. These are divided by them into five groups:

1. Probably infectious arthritis of unknown etiology, e.g., rheumatoid arthritis.
2. Infectious arthritis of proved etiology, e.g., gonorrheal arthritis.
3. Degenerative joint disease, e.g., osteoarthritis.
4. Arthritis due to physical injury to the joint.
5. Arthritis of gout.

After a discussion of the incidence and social problems involved, a detailed description is presented of rheumatoid arthritis, osteoarthritis, gonorrheal arthritis, and gouty arthritis, laying particular stress on the differential diagnosis and therapy.

Reprints of this article in pamphlet form may be obtained from the Committee.

ACTION OF VEGETATIVE NERVOUS SYSTEM ON WHITE BLOOD CELLS, S. A. Ravinski and D. E. Konstantinovski, *J. Med. Ukr.*, 1940, 10, 1201-1210.

The introduction of air via lumbar puncture stimulates the vegetative centers of the 3rd ventricle. A marked increase of leukocytes with a shift to the left, lymphopenia and a hypo- or aneosinophilia were observed with maximum reaction in 3-4 hours. Clinical observation in intravenous hemorrhage shows leukocytosis and lymphopenia.

ACTION OF MACROPHAGES CONTAINING ERYTHROCYTES ON COMPOSITION OF BLOOD, N. D. Judina, *J. Med. Ukr.*, 1940, 10, 1451-1460.

Substances highly active against rat erythrocytes are formed in guinea pig macrophages after injecting rat red blood cells. Subcutaneous injection of one drop of peritoneal fluid (containing rat erythrocytes phagocytosed by macrophages) into a healthy rat decreases hemoglobin and erythrocytes by 7 to 30% (for 1-3 days), increases reticulocyte count, and stimulates red blood cell destruction in the spleen. There is a

return to normal in 8 days. Peritoneal fluid containing macrophages acting on mice and guinea pig erythrocytes is inactive in rats.

BULLETIN OF THE AMERICAN COLLEGE OF SURGEONS, WAR ISSUE, 27-2, April, 1942.

This issue of the Bulletin reports the papers and panel discussions of the War Session of the American College of Surgeons.

War injuries of the chest are thoroughly covered, e. g., the care of blast concussion in which there is interstitial hemorrhage, at times rupture of alveoli, and occasionally associated costophrenic sinus pneumonia. The treatment is usually bed rest, oxygen and immobilization of the chest.

Penetrating wounds are discussed under several headings: a. Sucking pneumothorax. b. Tension pneumothorax. c. Hemothorax. In the treatment, it is important to remember that in any case all foreign bodies and crushed lung should be removed by operation within 24-28 hours of the injury and that inspection must be made for rupture of the diaphragm or injury to the stomach or spleen.

The discussion of shock brings out the important point that the usual clinical signs are late signs and that cases which might go into shock must be treated before shock appears. There are two early signs; one is a downward trend in the systolic pressure, and the other is a reduced minute volume flow of blood through the extremities. Treatment for shock should be started on all burns, chest or abdominal wounds, fractures, and hemorrhage. Control bleeding, splint fractures, give morphine for pain. If heat is used to the periphery, give fluids. Plasma is of vital importance.

Blood substitutes are either citrated whole blood, wet plasma, dried plasma, or bovine serum albumin, of which plasma is the most important, especially in the treatment of burns.

No one completely satisfactory method for the local treatment of burns has appeared as yet. Any one of a number of substances may be used, as, tannic acid, silver nitrate, aniline dyes, etc.

In the discussion of soft tissue wounds, two principles were stressed: first, that if the wound is infected, debridement should be done, and if infection is not yet started the wound should be excised; second, that sulfanilamide is the drug of choice for local application because of its bacterial polyvalence, its solubility, and the fact that it is non-irritating. In addition, sulfadiazine should be given by mouth at the same time to keep the blood level between 5 and 10 mg. percent.

In the treatment of fractures, in addition to debridement, fixation and sulfanilamide were emphasized. Stress was laid on proper first aid and proper methods of transportation in reducing the mortality rate.

**INDUCED THIAMINE (VITAMIN B<sub>1</sub>) DEFICIENCY AND THE THIAMINE REQUIREMENT OF MAN**, Ray D. Williams, M.D., et al, *Archives of Internal Medicine*, Vol. 69-5, March, 1942.

Eleven normal carefully selected well-nourished white females were utilized to determine the effect of moderately prolonged diet. The first effect noted was a state of emotional instability, reflected by irritability, moodiness, quarrelsomeness, mental depression, and various somatic symptoms which eventually progressed, after weeks or months, to more objective manifestations of thiamine deficiency such as low basal metabolic rates, high blood sugar, and high blood pyruvic acid after the ingestion of dextrose.

It was determined that normal weight can be maintained on a daily intake of 0.22 mg. of thiamine per 1000 calories, but that mental and physical efficiency was at a low par. The optimal level on a diet containing conventional amounts of carbohydrate and fat is between 0.5 mg. and 1.0 mg. per 1000 calories, the individual variations depending on the basal metabolic rate and other factors, such as activity, diet, and intestinal absorption.

**ACTION OF CYTOTOXIC SERUM ON MESENCHYME**, G. O. Spasokukotzki, *J. Med. Ukr.*, 1940, 10, 1475-1493.

Inhibition of mesenchyme functions in rabbits caused by intravenous injections of cytotoxic serum is attributed to general sensitization of the organism resulting from antigen-antibody reaction in mesenchyme cells, and disturbance of intracellular metabolism.

## OBITUARY



DONALD WIGHT BECK (1888-1942)

It is with the deepest sorrow that we mourn the passing of a sincere and well-beloved friend, Donald Wight Beck.

Born and reared in Chicago, Mr. Beck studied architecture at the University of Illinois and in the schools of France. The shores of Lake Michigan were beautified through his efforts; many elaborate homes remain as fitting monuments of his extraordinary talents.

His versatility was crowned by now world-wide recognition, and numerous citations rewarded his photographic studies. Well-known to his many friends were his fine collection of rare books, his sail-boat designs, his studies in art. His country will remember his distinctive service as an officer in France during World War I.

Mr. Beck had been for some time a very active participant in the progress of our School, acting as a member of our Board of Directors. It was under his talented supervision that the recent improvements in our building were made. He gave unstintingly of his time and effort. We, his friends, shall never forget the spirit which spoke within him. We shall always mourn his loss.

# ALUMNI

1898

M. H. Pauly is in general practice in Chicago and is "still going."

1900

Raymond G. Olson envies the man with an Army commission. He says he's pleased to receive our magazine. We hope he will continue to be pleased.

1904

Oscar L. Ballinger is in general practice in Chicago Heights.

1906

A. H. R. Atwood tells us he's with Lockheed Aircraft out at Burbank, California. He's a Mason, an Odd Fellow and a Knight of Pythias.

1910

Charles Grant Johns is doing industrial surgery in Chicago.

1915

G. E. Kirby is in general practice at Spring Valley, Ill., and is examiner for Draft Board No. 2.

1917

H. Noskin is on the surgical staff of the Norwegian American Hospital, a Chicago Medical Society delegate to the State Medical Society, Councillor of North West Branch of the Chicago Medical Society, and a physician and chief officer in civilian defense.

Maurice L. Seidner is in general practice and specializes in eye, ear, nose, and throat.

1919

A. J. Offord is especially interested in internal medicine and tells of very varied hobbies, including choir directing, trap and skeet shooting, hunting and fishing. Sounds like lots of fun!

1922

Michael Pacella tells of success with the use of Metalol in the treatment of syphilis. We'd welcome more information.

1923

D. A. Palmisano is in general practice and is on the staff of the St. Elizabeth and Mother Cabrini Hospital.

1925

H. L. Du Vries does general medicine and surgery and reminds us that he was President of the Illinois College of Chiropody and Foot Surgery, from 1930-1941.

1926

W. A. Gray is practicing general medicine in Chicago.

1927

Herbert B. Erikson suggests that we publish the names of donors to our endowment fund, thus stimulating some pride and bring in some contributions.

1928

Anna C. Besick is practicing in Berwyn, Illinois.

William T. Gueno is now medical examiner for Local Board No. 1, and for the Supreme Liberty and the Unity Mutual Life Insurance Companies; he is a member of the Mississippi Valley Medical Society and of the Mound City Medical Forum.

Caesar Portes is specializing in proctology.

1929

N. B. Colombo is in general practice in Chicago.

I. Henry Rosenberg tells us about attending the meeting of the International College of Surgeons, July 15th to 18th, at Denver.

Helena Hutman announces her presence.

1930

Standlee I. Twitchell is in general practice in Belleville, Ill. He reminds us that he served with the U. S. Army in the last war.

1931

Margaret M. Harrington describes herself as a physician and surgeon. We should like to hear more about her current work.

1932

Felix Ralph Baylin is examining physician for the Selective Service System Portage Park examining centre.

Leonard J. Houda is in general practice in Berwyn, Illinois.

W. J. Kutas is practicing in Chicago.

1933

Herman Rhoad is now Medical Director of the Holland-Rantos Company in New York City. He is currently preparing some work on antiseptics.

Leonard C. Johnson is in practice in Tampico, Ill. He tells us about a six year old daughter and a one year old son.

George N. Mansion is awaiting an Army commission.

1934

E. J. Rossman is awaiting an Army commission. He's practicing in Aurora, Ill.



J. L. Bezdek writes: "Alopecia, dentures, subperitoneal beer and a yen for Army life." Amen, brother!

Joseph P. Cangelosi is an Associate on the surgical staff of the St. Elizabeth Hospital.

I. Mirikitani is specializing in internal medicine and is enjoying the practice of medicine.

#### 1935

Louis I. Greenspon is waiting to be called to the Army. He's in general practice and buying war bonds. He boasts: "Have a son 15 months old and he is held to be the cutest child in town." (!) His new hobby is building model war planes. Some fun, we'll say!

S. S. Gersten is practising in Rockford, Ill.

Meyer H. Parker is waiting for his Army commission.

I. A. Sklar is in general practice in Chicago and waiting for the Army call.

D. T. Mastrianni is staff member of the Columbus Hospital, County Staff Physician of the Cook County Bureau of Public Welfare, and examiner for Selective Service Board No. 58.

A. J. Tanny is doing medicine and surgery.

Hiroshi Inouye is Camp Physician for Camp No. 2, Poston, Arizona.

Frank P. Ilasi is waiting to hear from the Procurement and Assignment Board.

Jacque R. Chalfin is now located in a tri-city area with a total population of about 45,000, about five minutes from St. Louis. Says he: "Our Quarterly is a good indication of excellent progress being made by our school." (You might know we'd print such an excellent compliment.) He's doing private practice, industrial surgery and working on war projects. His hobbies: daughters Judy and Barbara.

Philip O. Shultz is getting along in Chicago.

Vincent J. Fazio is in general practice and is a member of the Board of Health in So. Amboy, New Jersey. He writes: "I enjoyed the Quarterly tremendously. We graduates can be aware of the notable progress you are all making for the School. The Quarterly is one of your great achievements." Thank you!

B. C. Kappmeyer is expecting to be called to the Army very soon. He's married and has a three year old daughter. He's been sick recently but is now well again.

John Le Blanc is establishing his practice in Cottage Hills, Ill.

#### 1936

Lewis A. Hare announces his presence.

Francis J. Krueger is waiting to hear from the Army.

W. J. Poshataske is associated in partnership and ownership of the Silsbee Clinic, Silsbee, Texas.

John M. Smialek is in general practice in Chicago.

#### 1937

Max Pister is in general practice.

William F. Orlando is a full associate in the Mohave Medical Clinic. He writes: "Kept busy with defense work and marking time, expecting to be in the Army. Regards to Dr. Sheinin and the bunch back there who have been doing a grand job."

#### 1938

H. J. Horvitz is engaged in the practice of general medicine and surgery. He's now assisting in the Neurology and Psychiatry Clinics and is an Associate of the Society of Sigma Xi.

H. R. Moser is waiting to hear from the Army.

#### 1939

Albert M. Rosen is expecting to be called to service with the Ski Troops within a month. He's a member of the Pond Clinic. He says: "Taos County Medical Society is organizing a medical cooperative to provide medical and hospital care for over 1,000 families in the low income group." Wanted—more information.

John A. Conley is awaiting a commission with the Air Force.

#### 1940

Ewald H. Hoerster is in private practice.

A. C. Tobey writes: "Am working a lot with L. N. Clyne, '38, who has a new 10 bed hospital at McLeansboro. Thompson, '40 is at Eldorado; Komosa, '40 is at Fairfield, and Vickers, '38 is at McLeansboro." Thanks for the tip!

#### 1941

H. E. Fisher announces the birth of a son on June 11th, 1942. The name is Milton Louis Fisher.

Louis Berlin has been accepted for graduate work in Neurology at Northwestern University Graduate School.

#### 1941

Irwin A. Smith is now Camp Physician at Stroudsburg, Pa. He expects to work for the Department of Public Health at Johns Hopkins in October, 1942.

Edward John Martens, now a 1st Lieut. with the Army Air Corps announces that he is married and has a son. We should have been advised sooner!

Richard P. Fahey is applying for an Army commission.

## DEATHS

Marie G. Salerno, '31, of Chicago, Illinois, staff surgeon at the Mother Cabrini Hospital, in childbirth.

Irving G. Goodman, '31, of Loda, Illinois, as a result of an automobile accident.

## PERSONAL NOTES

### Married

William S. Easton and Helen Louise Yamins, of Fall River and West Newton, Mass., were married at Boston, July 26, 1942.

Dr. Raphael M. Adelman and Cecelia Louise Butt, of Chicago, were married at the Windermere Hotel East, August 22, 1942.

Bartolomeo Iaia and Geraldine Rossi of Auburn, N. Y., were married June 24, 1942 at Auburn, N. Y.

Daniel C. Belinker and Mildred Gordon of New York, were married June 28, 1942 in New York.

Irving N. Agrin and Alice H. Mittman of New York, were married in New York, June 28, 1942.

Kenneth Hubbel and Bernice Washburn of Chicago, were married in Chicago, June 20, 1942.

Pasquale DeMarco and Helen Bitterman of New York, were married in New York, June 28, 1942.

Eber A. Wein and Esther Lillian Adnoff of Dover, N. H., were married in Dover, March 29, 1942.

Sam H. Rosen and Irma Cohen, of Chicago, were married at the Windermere Hotel East, July 25, 1942.

Harold Zolan and Mollie Cohen of New York, were married in New York, June 27, 1942.

Frank Uyeno and Miyo Miyagawa of Seattle, were married in Chicago, April 15, 1942.

Robt. D. Redston and Leona Bell were married September 24, 1942 in N. Y.

Lawrence Meyers and Rosalind Echleman of New York, were married in New York, June 25, 1942.

Herman L. Weisberg and Irene Susan Grossman of Chicago were married September 5, 1942.

Lawrence Wishnoff and Shirley Schatz of New York, were married September 26, 1942.

### Engaged

Harold S. Glassman and Jeanette Jaffe of Chicago were engaged March 15, 1942.

### Anniversaries

Mr. and Mrs. Milton Dillon celebrate their fourth anniversary September 4.

Mr. and Mrs. Max D. Shapiro celebrated their third anniversary June 18.

Mr. and Mrs. "Pat" Cohen celebrated their third anniversary March 26.

Mr. and Mrs. Harold Bernstein celebrate their third anniversary September 30.

Mr. and Mrs. Martin Graff celebrated their second anniversary June 29.

Mr. and Mrs. Herbert Fine celebrated their first anniversary June 21.

Mr. and Mrs. George Woloshin celebrated their second anniversary March 21.

Mr. and Mrs. Leonard Shepard celebrate their second anniversary September 8.

*We will be pleased to print any announcements that are submitted to us.*

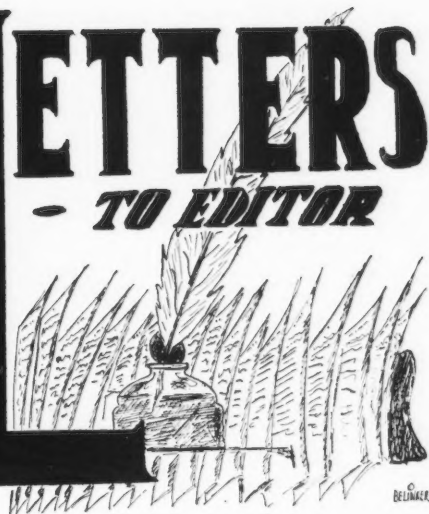
## ATTENTION CHICKADEES!

*Are you troubled with tachycardia or bradycardia? If your pulse rate is over 982 or under 765, send for a years supply of our vagotropic or sympathomimetic worms. Specially bred under the most rigid scientific conditions in the hatchery of 666 windows. Not a colic in a carload! Send electrocardiogram with request.*

## RECENT ADDITIONS TO THE LIBRARY

- A. M. A.—Standard Nomenclature of Disease, 3d ed., 1942  
Alexander, J.—Collapse of Pulmonary Tuberculosis, 1937  
American Urological Association—History of Urology, 2 vol., 1933  
American Pharmaceutical Ass'n.—National Formulary, 7th ed., 1942  
American Student Health—Source Material of Hygiene, 1940  
Bay, J. C.—The Fortune of Books, 1941  
Bridges, M. A.—Dietetics for the Children, 4th ed., 1941  
Burrell, L. S. T.—Pulmonary Tuberculosis, 3rd ed.  
Belding, D. L.—Clinical Parasitology, 1942  
Boyden, E. A.—Laboratory Atlas of 13mm Pig Embryo, 1933  
Cole, W. H.—Kenny Method of Treatment for Infantile Paralysis, 1942  
Clapesattle, H. B.—The Doctors Mayo, 1941  
Chauliac, G. de—On Wounds and Fractures (trans. by W. A. Brennan), 1923  
Council for Democracy—Defense on Main Street, 2nd printing, 1941  
Davison, W. C.—The complete Pediatrician, 3rd ed., 1940  
Garceau, O.—Political Life of the A. M. A., 1941  
Hoffman—LaRoche Medical Division, Prostgmin, 1942  
Hawes and Stone—Diagnosis and Treatment of Tuberculosis, 2nd ed., rev., 1940  
Hertzler, A. E.—Diseases of the Thyroid Gland, 1941  
Higginson, G. D.—Fields of Psychology, 1936  
Jacobs, M. B.—War Gases, 1942  
Karrer, P.—Organic Chemistry, 1938  
Katz, L. N.—Electrocardiography, 1941  
Lichtwitz, L.—Functional Pathology, 1941  
Lichtwitz, L.—Nephritis, 1942  
May, C. H.—Diseases of the Eye, 17th ed., 1941  
Meakins, J. C.—Symptoms in Diagnosis, 1941  
New York—Annual Report of the Department of Health, 61st, 1940  
Patten, B. M.—Early Embryology of the Pig, 2nd ed., 1931  
Parke-Davis and Co.—Synapoidin, 1942  
Schiff and Boyd—Blood Grouping Technic, 1942  
Sulzberger, M. B.—Dermatologic Allergy, 1940  
Topley, W. W. C.—Immunity, 1935  
Western Surgical Ass'n—Names of Surgical Operations, 1935  
*New Journals in the Library:*  
British Journal of Dermatology and Syphilology  
Journal of Syphilis, Gonorrhea and Venereal Diseases

# LETTERS - TO EDITOR



Dear Sir:

Thank you very much for your congratulations upon my obtaining a commission. I got your letter just as I was leaving for a new assignment on Friday, August 21st.

I've had a very hectic week since I joined the armed forces. I was ordered to active duty on August 17th at Morrison Field, in West Palm Beach, Florida, and was assigned to the Air Transport Command of the Air Force. After traveling 1300 miles from Champaign to Florida, I was picked out, with seven other men, to proceed to Washington, D. C., a mere 1100 miles more. On August 24th, I start a course of training of eight weeks duration in the School of Tropical Medicine, at the Army Medical School.

We have a class of 70 men here from all over the country and the lectures are by the most prominent men in their respective fields. I feel honored by this appointment. At the end of the course, we receive certificates in Tropical Medicine and return to our home base for our next assignment. I will inform you of my progress.

Best wishes and kindest regards, very truly yours,

Isidore Brill, 1st Lieut., M.C.

Dear Sir:

For some time I have planned to drop you a line but I have always been too busy to do so. I note with interest the copies of the "Quarterly" that I have received so far and will subscribe for it in the near future.

THE QUARTERLY

I have had some interesting cases, including aortic aneurysm, adenocarcinoma of the kidney, eclampsia with hemiplegia and puerperal psychosis, typhoid fever with complicating renal frank hemorrhage, prostatic resection, puerperal infection, and many others, remarkable in clinical features and with subsequent recovery.

This is a good field for medical practice. I have practiced in Chicago, Quincy, Rock Island, and E. St. Louis. I've been a member of the Adams County, Rock Island County, and the Illinois State Medical Societies.

As a former student of The Chicago Medical School, I knew what discouragement was, for I came up through the real dark, uncertain days. However, if a man will really absorb what Chicago Med. offers him, he can come out and hold his own with anyone. The School offers a basic preparation, a foundation in theory and principles. It must be in the man to absorb these with an understanding mind. The real school is out in the field of experience, where most of the best learning comes.

Best wishes to any classmates, friends, etc., in Chicago.

Very sincerely,

William T. Gueno, M.D.

## PERSISTENT URACHUS

(Continued from page 23)

Persistent urachus is most often extra-peritoneal, running in the anterior abdominal wall from the dome of the bladder to the umbilicus, beneath the posterior rectus sheath, although it may also be intra-peritoneal, as brought out by the writer's two cases.

According to reports in the medical literature, persistent urachus might be considered a rare anomaly, since only 154 cases had been reported up to 1941. Undoubtedly many times this number have been seen and not reported, and many more undiagnosed.

*"Man has climbed up from some lower animal form," says John Burroughs, "But he has, as it were, pulled the ladder up after him."*

# ORGANIZATIONS

## NU SIGMA CHI

Since the outset of this first Summer Session for the entire school, Nu Sigma Chi has been actively functioning as in the past. New officers having been inducted, the fraternity has taken a new "lease on life", and there has been excellent cooperation among the members.

Among the various activities of the Nu Sigma Chi this summer has been a steak roast held at Timely Woods the night of June 15th. A very gay crowd was present and all enjoyed themselves. Among the other activities were house parties, and a novelty picnic held at Thatcher Woods, Sunday, August 2nd. Attendance was good even though the weather was not so promising. Brother Padour had a very good program outlined for us. We are now planning another get-together which will be held at one of the nearby lakes.

Rushing season will open with the new quarter. At present there are many upper classmen who have expressed their desire to become pledges. Even though the Freshman Class is not yet with us, we are already drawing plans for the new pledges. Our gatherings during next quarter will be held earlier in the season than they have been in the past. Our formal dinner-dance, main social event of our fraternity, will be held at an earlier date because of the early graduating date.

## PHI LAMBDA KAPPA

Under the able leadership of Worthy Superior Leroy P. Levitt, the Alpha Rho Chapter of Phi Lambda Kappa has continued to occupy its usual high place in school activities. The accelerated program of studies seems only to have filled the fraters with more ambition than ever before.

Our ever present series of monthly dinner meetings continues. In Mid-July it was our extreme pleasure and privilege to have with us an Alumni Frater, Dr. David Goldfinger of the Department of Medicine, who spoke at some length on the subject: "Angina Pectoris and Coronary Thrombosis—Differential Diagnosis and Treatment". This same evening marked a high point in fraternity activities for the Summer Quarter. The Chapter officially presented an inscribed silver bowl to our good friends Dr. and Mrs. Brodsky, in commemoration of their twenty-fourth wedding anniversary. The Chapter was especially happy in

admitting two new men to pledgeship, Lou Lazar and Sam Udell of the Sophomore Class.

The Alpha Rho Chapter continues, as ever, its part in the war effort. A functioning group has been set up within the organization for the sale and purchase of War Bonds and Stamps. This group is ably led by Fraters Weishaus and Horowitz. Many of the Fraters are continuing their support of the Blood Donor Service of the American Red Cross with regular contributions.

At present our constitution is being thoroughly revised by Frater Bert Moss and it is expected that the new constitution will be accepted by the chapter formally, by the end of the current quarter. Now, even more than previously, the permanency of the chapter must be assured. All our efforts are united in assuring strength and unity.

It is our extreme pleasure to announce the recent marriage of Fraters Larry Meyers, Sam Rosen, Bill Easton, and Ray Adelman. We note with pride that Frater Adelman has recently been appointed to the Minor Oral Surgery staff of the Mandel Clinic at Michael Reese Hospital.

A word of welcome to incoming Freshmen: We hope many of you will find yourselves within these walls—as we have before you. Fraternal life will welcome many of you—who care to enjoy its advantages. Choose wisely—in unity lies strength!!

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*Sir Kenelm Digby proposed the following remedy for fever and ague: "Pare the patient's nails; put the parings in a little bag, and hang the bag around the neck of a live eel, and place him in a tub of water. The eel will die, the patient will recover."*

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*Against Epilepsy or the Falling Sickness: Take of the powder of the true mistletoe of the oak, as much as will lie upon a sixpence, early in the morning, in black cherry water, for some days near the full moon.*

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*Of medicine in the American Colonies in the latter part of the seventeenth century, one historian has written: "Anyone who knew calomel from tartar emetic, and jalap from ipecac, and had the assurance to use them, who could make and apply ointment and plasters, dress wounds or splint a broken limb, was a welcome settler and received the title of doctor without asking."*





**JOHN ROBERT HATTSTAEDT**

John Robert Hattstaedt, President of the American Conservatory of Music, is a distinguished citizen of Chicago. For some years a member of our Board of Directors, he has long been a distinctive force in the cultural life of Chicago and the mid-West.

Born in Chicago in 1887, Mr. Hattstaedt was educated in our schools and continued his education at Princeton University. After a brief career with the infant motion picture industry, he entered upon his life work in the field of education. His famous father, John L. Hattstaedt, had founded the American Conservatory of Music in 1886, and, in 1914, John Robert embarked upon his career in that field. In the subsequent twenty-eight year of his constant association with the Conservatory, (except for time out in the service of his country, World War I) it has grown in size and prestige and is now one of the foremost musical education centers in America. Here innumerable concert artist and well-known musicians and teachers from all over the country have had their training.

Mr. Hattstaedt is an extremely modest man. But those who know of him well appreciate his considerable patronage of music in our city, his gracious contributions to the Community Fund Drive, his friendly advice and assistance to all of the music schools of Chicago, his help to numerous philanthropic organizations and the United Service Organizations. Not the least of his many valuable contributions to the life of our city is his capable assistance as a member of our Board of Directors. We are proud to have him with us.



**EDWARD HOPF**

Mr. Edward Hopf was born in 1885 on a small farm west of Blue Island and received his education in Blue Island. He is a true son of Chicago. At the age of nineteen he became associated with the Union Trust Company Bank. Early recognition of his qualities brought steady advancement, and this association has continued for twenty-one years.

At present Mr. Hopf is prominent in local finance and real estate and is serving his second term as member of the Board of Directors of The Chicago Medical School. He has been an especially active member of the Building Committee during the recent program of improvements made in the physical plant of the School. His hobbies are fishing, golf, and hunting—but his greatest interest is centered in his family, of which he is justly proud. His son, Edward Jr., a graduate of Wabash College, is at present serving in the Coast Guard. Another son, George, is soon to enter the Northwestern University. His daughter, Dorothy, is a graduate of the Stevens Girls School, and Phyllis is at De Pauw University.

We are proud to have Mr. Hopf serving with us at The Chicago Medical School as a member of our Board of Directors, and hope that this association will continue for many years.

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**BUY WAR BONDS  
AND STAMPS**



## THE SAGA OF HENRY

OR

## SPORTING LIFE

HENRY GOSHEN

"The wages of sin are death." Conversely, the salary paid for indolence is long life. Since the age of twelve, my mode of living has been directed toward avoiding all those things which require responsibility and exertion, physical and mental. Thus, I hope to live to a ripe old age.

Enrolling at The Chicago Medical School, I learned the things one has to avoid are many.

One must avoid being elected a class officer. Failure in this leads to all sorts of responsibility and the necessity for making numerous nerve-racking announcements. I can recall three announcements which were made and two which should have been made:

"Herb Krantz has pneumonia; 10c a man buys him flowers."

"Dr. Sicher is ill; 10c a man buys him gloves."

"Oscar Schwartz has pneumonia; 10c a man buys him a medical dictionary."

"Herb Krantz is ill; 10c a man buys him a new nose."

"Herb Krantz is ill; — he bought himself a new nose."

Then there was the AIMS . . . I had to avoid a group of students bitterly aware of the exigencies of life. They had all sorts of committees: national committees, regional committees, local committees, social committees. And Mike Sacks!

For two years I circumvented all attempts to draw me into a responsible position until one afternoon in the Pathology lab, a chap whose initials are Herman Weisberg, cornered me. He is one of the more ambitious type. Not content with being an active member of the AIMS, he is also associate editor of the Quarterly, which capacity gives him the right to "apple polish" the instructors after class with requests to write articles. (Dr. Reich gave him an 'A'). Furthermore, in class he asks many intelligent questions. Sometimes he himself doesn't even know the answer. Anyway, he approached me and inquired if I would be a good boy and write a letter to the Editor requesting the Quarterly to take an active part in extra-curricular activities. I have always been a good boy. Ergo, I could not refuse.

I wrote the letter to the Editor. And with its sub-

sequent appearance in print, a phase of my life came to an end. For in writing "that letter", I had become so imbued with what I was doing, that I demanded that a sports editor be appointed.

The terms of my demand were apparently so convincing that the editors of the Quarterly were compelled to hold a hurried conference to decide what should be done in this crisis. The meeting ended. And I was their man.

Enough of my lamentations. Now for my "pièce vierge."

The invitation of the U. of Illinois to the students of The Chicago Medical School to participate in a Soft-Ball tournament was eagerly accepted and, with the blessing of Dean Sheinin, three class teams were organized. Thus far, we have little to be proud of in the way of athletic achievement. The Juniors, who were sure they were the class of the league before the season opened, are not in the cellar for the simple reason that the Sophs have taken root in those cool and damp environs. The Sophs, as a matter of fact, have not come closer than four miles to winning a game. The Seniors have managed to retain a semblance of swagger with a record of 3 won and 4 lost.

The booby prize for general ineptitude at this time remains a toss-up between Allan Hruby, who has yet to catch a fly ball, "What-a-Head-of-Scalp" Natkin who has yet to get a hit, and Irv Agrin, the man most likely to pop up. Orchids to Stu Rabeau who has obtained six hits in three games, including a home-run and a triple.

The standing of the league follows:

4th—Seniors

6th—Juniors


7th—Sophomores

Flash! C.M.S. All-Stars 9, Phi Delta Epsilon (League-Leaders) 1.

C.M.S. All-Stars 7, Phi Kappa (3rd Place) 3.

*In 1548, the Emperor Charles V of Germany enunciated one of the earliest Pure Drug acts: "It having come to our ears that deteriorated and spurious drugs are being dispensed on physicians' prescriptions, which, if taken into the system will do more harm than good, we do herewith decree, that it is our will that the authorities in matters pertaining to the apothecaries' trade should annually visit and inspect their shops, and also fix the value of all materials there found so that the buyers shall in no way be deceived."*

# BOOKS



THE DOCTORS MAYO—by Helen B. Clapesattle,  
The University of Minnesota Press, Minneapolis,  
1941.

Anyone who can read "The Doctors Mayo" without genuine regret at not having been privileged to meet them, should view with more than casual concern his own sense of values. Plans for this book have been long in the making and the result is well worth the time spent in preparation. As a historian, the author uses a well-tempered, dignified style, spiced with numerous anecdotes and personal details concerning the great men whose life work she relates.

The story begins with the Old Doctor, who came to this country from Eccles, England, just before the Civil War and, after several academic connections, made his way to the frontiers of Minnesota. His lot was nothing less than that of a pioneer, and that he had the qualities of a leader is bountifully shown by his success in the medical and political activity of Minnesota. Medicine, as it is known today, scarcely existed. Pasteur and Lister had not yet given their results to the world. Indian fighting was no rarity, and, during the sixties, Dr. Mayo served as medical examiner for the draft.

The integrity, energy and resourcefulness of the father had established a good medical practice by the time the two boys, Will and Charlie, were beginning to take an interest in higher education. It was no doubt a source of satisfaction to the father to be able to pass on more than advice to his sons; however, one thing they never forgot was his contention that no

man is big enough to be independent of others. Though a general practitioner, the elder doctor followed his special interest in the growing art of surgery and was soon performing successful ovariectomies, a dangerous procedure in those times, much to the amazement of the public and his colleagues.

Will and Charlie were apparently bright chaps but were not singularly different from other boys their own age. They had, however, begun to show that strong fraternal bond which was to serve them well in later years, but they were quite unlike in most respects. Will was tall, blue-eyed and quite sensitive; Charlie was stocky, dark and seemingly more carefree. Personalities do not change easily. Dr. Will became an austere and somewhat unapproachable executive while Dr. Charlie retained his friendly personality and mingled easily with everybody. After medical school, each was taken immediately into his father's practice and, despite the natural reluctance of people to trust such young doctors, the brothers soon proved their mettle. One thing they did have in common was their interest and later proficiency in surgery.

A catastrophe in 1883 in the form of a tornado which destroyed a large section of Rochester led the Sisters of St. Francis to accelerate their plans for the erection of St. Mary's hospital. The new hospital did not cater to any religious group. Because of their interest and encouragement, the Doctors Mayo became the chief attending physicians. As their practice grew, the young doctors were soon doing a great variety of daring operations including appendectomy, thyroidectomy and gastroenterostomy. They soon learned, to their great advantage, that their father's scepticism regarding Listerism was unfounded. Statistical results on the many new surgical procedures were at first reported locally but later were presented before national societies. When they heard of some new technique, they went to see it for themselves. Considerable travel at home and abroad was added to their routine but one of them always stayed at Rochester to look after things. Only complete faith in each other's ability enabled such teamwork.

Gradually, the Mayos surrounded themselves with an array of able men and, in 1914, the Mayo Clinic with its new building was an established fact. Each new doctor was allowed considerable latitude to follow his own natural bent and some research was begun. The Mayo brothers were becoming too rich for their own peace of mind; so they proposed a plan to turn back their savings for the further development of medical education and research. The proposal included affiliation with the state university whereby

graduate work in clinical medicine could be pursued. With the turning over of one and a half million dollars of their own money to the trusteeship of the Board of Regents at Minneapolis, the Mayo Foundation was established in 1915. The work itself was to be carried on at Rochester. Soon, a wave of opposition to the scheme became manifest chiefly based on the familiar charge that the Rochester group was a family partnership running a private business. The dissenting group was so strong that a bill forbidding the partnership passed the state senate by a vote of 36 to 31. After much turmoil, the obstacles were overcome and it is revealing to quote from Dr. Will when he was called to defend his stand. He said: "Every man has an inspiration for good in his life. With my brother and I it come from our father.—It seems to be the idea of some persons that no one can want to do anything for anybody without having some sinister or selfish motive back of it.—Now let's call a spade a spade. The money belongs to the people and I don't care two raps whether the medical profession or the state like the way this money has been offered for use or not."

In 1917 the affiliation was made permanent. In 1925 all the property and assets of the clinic, amounting to ten and a half million dollars, were turned over to the corporation known as the Mayo Properties Association, which consisted of the brothers and their medical and legal associates.

For the layman, this book probably has too much detail, especially as regards the numerous opinions of newspapers on the numerous controversial issues which marked the life of the Mayos. Even professional men and women who may have been mildly interested in subjects like constitutional history in college may see fit to skip a few sections here and there; but, as a scholarly contribution on the origin and growth of the great medical center at Rochester and on the history of medicine during the past three quarters of a century, "The Brothers Mayo" is a splendid contribution.

W. E. MacFarland, Ph.D.

SOCIETY AND MEDICAL PROGRESS, by Bernard J. Stern, Princeton University Press, 1941, 222 pages and 20 pages bibliography.

There is an old saying: "He can't see the forest for the trees." This applies very well to the medical profession at different stages of its development. Medicine, which deals directly with the saving of human lives, is a great and complicated subject. Doctors find it takes all of their time and energy to recognize and treat disease as it is brought to their

attention in the individual. They wage a constant war with Death—but on a local front. They disdain to philosophize about disease. They are too busy fighting it. But there is much more to medicine than the individual battle of the physician against a pathological process in his patient. To gain a bird's eye view of this forest of medicine is one of the benefits to be derived from a reading of this book.

Mr. Stern is not a doctor. He is a social scientist who brings his broad experience to his subject through the invitation of Dr. Michael Davis and the Committee on Research in Medical Economics. The book is short and the discussions, of necessity, are brief. Nevertheless, the conclusions are easy to draw and there is a long bibliography for those who wish to delve more deeply into the matter.

The underlying theme of the book, which seems to run like a constant thread through the multitudinous fabric of the history of medicine, is the conception of medicine, not as an isolated field of human endeavor, but as a developing science closely interrelated with advances in other sciences and a social phenomenon closely tied to the progress of society. To illustrate: the microscope is one of the pillars of modern medicine, but its invention had to wait until the science of physics worked out the principles of optics and this in turn was dependent upon the revival of the spectacles trade in the sixteenth century. The microscope then made possible the sciences of histology and bacteriology and these in turn led to newer concepts of life, of cells, of disease, of antisepsis and asepsis, and of modern surgery. The new science of surgery, with its highly specialized techniques and apparatus, is one of the chief reasons for the development of the hospital to the central place it holds in medical practice today. Hospital training, in its turn, raised the standards of medical practice on one hand while, on the other, the high cost of hospital care has put it beyond the reach of the low income groups, thus raising community and public health problems and contributing to the rise of health insurance and group health plans. But not only has medicine's advance been dependent upon advances in other sciences and in society, but also advances of medicine have reacted upon the other sciences and society and stimulated them in turn to advance. Thus, the control of epidemics made possible the growth of large industrial cities. The control of infectious diseases changed the age composition of populations, increasing the proportion of the aged and thereby intensifying the problem of social security.

The concluding chapter, on "Resistance to Medical

Change", deals with the opposition to such great medical advances as anatomical dissection, Harvey's theory of the circulation of the blood, Auenbrugger's theory of percussion, Semmelweis' theory of the transmission of puerperal fever, Pasteur's germ theory, etc. Let me quote what the Introduction has to say on this subject: "The contributions of medicine to society, particularly in recent times, have been prodigious. Yet they are not as extensive as they might have been. For there have been sociological and psychological forces operating throughout the history of medicine which have impeded medical progress. These have functioned outside and within the medical profession. They have offered strenuous and persistent opposition to innovations in medical theory, to methods of diagnosis and therapeutics, to preventive medicine in the form of public health regulation, and to changes in the organization of medical services. Resistance to innovations in medicine and the lag in the adoption of methods that have proved a boon to the health of mankind form an interesting chapter in human shortsightedness. They are not based solely on irrationality, to which they are often attributed. They arise also out of a complex web of socio-economic conditions which it has been our purpose to analyse." To all those people who are interested in society and medical progress, and unfortunately all physicians are not, this book is a "must".

Arthur Horowitz.

## THE AMAZING CURE

(Continued from page 11)

The doctor nodded approvingly and looked at the chart. Blood chemistry—normal. Blood pressure—220/120 and gradually dropping. The interne who accompanied the doctor looked at the chart, and then looked at the doctor in admiration.

"That's what I call a perfect piece of work! I've never seen the likes of it!"

The following morning the surgeon visited his patient and studied the progress of the case. His patient was in good spirits and gaining rapidly. She responded cheerfully to his questions and showered him with thanks. He glanced at the chart and studied the laboratory reports and the blood pressure which was now down to 180/100, and found himself very pleased with the results. After a word of encouragement to the patient and a short comment to the interne, the doctor left.

\* \* \* \* \*

"While we're in the hospital, John, I want you to come downstairs and look at a patient on whom I operated two days ago. She was a malignant hypertensive with a blood pressure of over 300/220, and I sectioned the splanchnic nerves on her right side two days ago. It's amazing the improvement she has made! Just before I left the office about two hours ago, I called the interne and he told me her condition was fine, that her blood pressure was still down. Of course, I know the operation will bring only temporary relief, but at least the woman will live her next few years in comfort.—Here's her room—let's go in."

As they entered the room a glance at the patient showed that she was in trouble. Her complexion had turned ashen gray. Her eyes were sunken, and she seemed very apathetic. She felt cold and clammy to the touch, and protested that she wanted to be left alone. A quick glance at the chart revealed that the patient's blood pressure had been 130/100 an hour ago.

"Nurse," called the doctor, "get the interne for me immediately."

The interne dashed into the room a few moments later, and when he saw the doctor, greeted him cordially and said, "Doctor, your patient is doing splendidly. An hour ago her blood pressure was down to 130/100. I have never seen such a miraculous return to normal."

"You're right," said the doctor, "the blood pressure is down to normal, but the patient needs immediate attention. I suggest that you give her 300 cc. of plasma immediately, and also give her 10 cc. of eschatin. This is a clear-cut case of surgical shock."

Who am I, that I should seek to share  
Secret sorrows of men, lend them my care?  
That I should listen with instruments bold  
To the tragic tale of a heart unfold—  
Or be sought to attend Birth's dawn of day  
And yet called again as life ebbs away.  
Unworthy am I of a ministry so high  
That binds soul to body and to Love draws nigh!  
May this be granted—not for my sake—  
That I serve the Great Physician, an apprentice in  
His wake. L.P.L.

*Early man regarded the poisoner with the same horror and loathing that we feel, because the use of poison involves the idea of death without the possibility of motor resistance, without giving the victim a fighting chance.*



## RUSSIAN MEDICINE

*(Continued from page 8)*

an operation to give a transfusion to a small girl injured when an air raid shelter was blown in by a direct hit.

A characteristic touch is the custom of donors to attach notes to the jars of blood, addressed to the recipient. Writes Olga Melekhova, "Dear Men of the valourous Red Army, I, mother of two grown-up children, am happy that my blood will help to make you fit as you were before you were wounded in action. Every one of you are just as near and dear to me as are my own children."

In the field of treatment of complicated head wounds, Red Army surgeons have made distinct advances. Injuries to skull and brain constitute from three to six percent of all war wounds. This varies depending on head protection, nature of military operations, i.e., positional or mobile, and the time of the year. Most wounds were caused by bullets in the war of 1914-18. Now these missiles account for 20%. The rest are mainly caused by splinter from shells and mines and are thus more serious, involving considerable laceration and frequent infection, giving rise to encephalitis and meningitis. The Nervous Diseases Clinic of the All-Union Institute of Experimental Medicine, between December 25th, 1941 and March 25th, 1942, operated on 90 patients, 70 of whom had abscess of the brain and half of these, serious traumatic meningitis. Heretofore, these have been almost invariably fatal. However, the majority of operations were successful. A good proportion of the patients have already been released and while not fit for active service, are gradually returning to a normal life. It is not always possible under field hospital conditions to perform operations on skull or brain wounds. Therefore, after preliminary surgical treatment for removal of shattered bones or metal splinters lying near the surface, transportation is attempted by plane or well-equipped ambulance to special neuro-surgical institutions.

A recent conference of base hospital personnel attended by about 300 Soviet doctors has reviewed the care of the wounded. According to the results of this conference it was reported by Deputy People's Commissar of Health Milovidov that the strict specialization of Soviet hospitals according to different types of war wounds has been amply justified. Compared with the last war, deaths from abdominal wounds have dropped 33%, from head, jaw, and thorax wounds, 50% and from spinal column injuries, 80%. Few cases of tetanus or gas gangrene have been

recorded. All in all, a total of 70% of all wounded are being returned to action. At one hospital, 97% of men with injured extremities who passed the gymnastics course eventually returned to the ranks. Most of the cases involved slight wounds which had left stiffness in the limbs after healing but some were more serious. In one case, a bedridden Red Army man with a broken pelvis recovered capacity for movement after a month of leg and pelvic exercises.

New methods of treatment have been introduced such as the use of a soluble preparation of sulphidine for locating foreign bodies by X-ray, a synthetic oil of balsam, and a method for producing anti-typhus vaccine in large quantities. Special plants have been established in Kirghizia for the large scale production of vitamins A and C. An improved hemostatic preparation called "trombin" has been developed. A new method facilitates freezing blood plasma for transportation and storage. Chemistry has evolved new methods for preparation of vinyl ethers, which stimulate tissue growth. Significant contributions in the early diagnosis of typhus fever have been made. A drug has been prepared which is very effective in the treatment of dysentery.

Before the present war, experiments were being conducted on the production of an anti-reticular cytotoxic serum and its use. This serum is produced by the formation in test animals of antibodies against cells of the reticulo-endothelial system. The serum inhibits the activity and growth of mesenchymatous cells when injected into the human in quantities over 2.5%, and stimulates these cells when injected in small doses. According to Professor A. A. Bogolometz, President of the Academy of Science of the Ukrainian S. S. R., under whom much of the work has been done, the serum has important application in cases of sclerosis and hypertony of the vascular system. Experiments in these instances were yielding encouraging results. With the war, efforts to use the serum for injuries have been rewarded. Stimulating doses of serum have been particularly beneficial in cases of delayed bony union by increasing osteoblastic activity. They have also been useful in the treatment of cases of delayed healing of ulcers, and in combating infection. Inhibiting doses have been tried also to prevent excessive scarring and fibrosis.

Soviet medical care is expanding. Last year, 15,000 medical students were graduated from Soviet medical schools. Next year's classes will probably total 24,000 graduates. Many are graduating from medical schools evacuated from Byelorussia, the Ukrainian and the Baltic republics. About 400 doctors will receive de-



grees from evacuated Kiev Medical Institute and 350 from the evacuated Kharkov Medical Institute. Many of these, of course, will be sent to the military forces, but a serious consideration has been given to the civilian needs as well.

An important aspect of medical care is the organization of medical care of children. Under the stress of war, with parents being sent to the front and to the factories, the care of children and provision of a home atmosphere, always considered vital by Soviet authorities, has received special attention. To this purpose the nurseries, kindergartens and "internats" or boarding schools have been devoted. They have been in use in peace-time but in war they have proven indispensable.

The advantages of large-scale preparation of foods and scientific cooking are obvious. Under the guidance of trained personnel the child can learn orderly work and play habits. Medical supervision is ensured. These institutions are held responsible for the decline by 38% in 1940 of cases of scarlet fever among children. Arrangements are made for as close contact as possible with parents. In areas likely to be bombed, sleeping facilities are underground to ensure adequate rest. Daily medical inspections coupled with health education programs for mothers have markedly reduced the incidence of childhood diseases. In addition, children consultation centers are continuing in war time their far-reaching program of free medical care, their practice of regular nurses' visits to the homes of children, and the maintenance of special wards for babies not ill enough for hospitalization but requiring systematic medical attention.

Through this program, working mothers can undertake Red Cross activity or some other extra war work with the assurance that their children will be cared for. Most important, the Red Army man at the front is guaranteed that the cause for which he fights the enemy will be protected in his absence.

## VAGINAL VERSUS ABDOMINAL HYSTERECTOMY

*(Continued from page 10)*

above the external os. It is most important at this point to judge the distance the bladder has descended on the cervix so as not to injure the bladder. This can very definitely be determined by inserting a metal catheter into the bladder. The cleavage planes are then found anteriorly and posteriorly and the bladder is advanced upward off the cervix to expose the anterior cul-de-sac. The posterior vaginal wall is

reflected off of the cervix to expose the posterior cul-de-sac.

The parametrium is then clamped and ligated on both sides. The posterior cul-de-sac is next opened and the utero-sacral ligaments are exposed, clamped, and ligated. There is a definite difference in the mobility of the uterus after the clamping of the parametrium and utero-sacral ligaments, and because of this increased mobility, it is easier to enter the anterior cul-de-sac and again prevent possible injury to the bladder.

After the parametria have been disconnected and the anterior and posterior cul-de-sacs opened, the uterus is delivered either anteriorly or posteriorly depending usually on its preoperative position. A uterus in the anterior segment of the pelvis is more easily delivered anteriorly while a retroverted uterus is more easily delivered through the posterior cul-de-sac.

The broad ligaments are clamped from above downward, the same as in abdominal hysterectomy, and the uterus severed from the broad ligaments. The tissue in the broad ligament clamps is now transfixed and we are ready to close.

The closure in a vaginal hysterectomy is performed according to the same principles as the closure in a total abdominal hysterectomy, namely, support of the vagina and peritonization. This is accomplished by sewing, on either side, the anterior vaginal wall, anterior peritoneum, round ligament, utero-sacral ligament, parametrium, posterior peritoneum, and posterior vaginal wall. After this is completed, interrupted sutures are placed through the anterior vaginal wall, anterior peritoneum, posterior peritoneum and posterior vaginal wall.

Subsequent to the completion of a vaginal hysterectomy we are of the opinion that all cases should have a pelvic floor repair. The question of anterior wall repair depends entirely upon the amount of involvement, but a perineorrhaphy should be performed though there is only a slight relaxation.

### *Newer Aspects of Post-Operative Treatments*

The exact treatment of the patient after operation naturally depends on her course, but we freely resort to intravenous supply of fluids, blood and plasma if necessary, intravenous vitamin K if there has been undue oozing, and intravenous vitamin C for additional good wound healing. In one case which developed a post-operation infection, sulfathiazole powder was used by insufflation, with excellent results.

### *Complications and Possible Methods of Prevention*

We are of the opinion that some of the complications of vaginal hysterectomy are preventable primarily by thorough systemic checkup of the patient preoperatively. Hemorrhage, which we have seen in about ten cases, very often does not occur until eight to fourteen days post-operatively. This is probably due to sloughing of some vessels secondary to a low grade infection. We think this can be prevented by maintaining a normal pH in the vagina preoperatively and giving sulfathiazole insufflation treatments as soon as the diagnosis of low grade infection is made.

*Peritonitis* is a very unusual complication and can possibly be averted by placing sulfathiazole or sulfaguanidine into the peritoneal cavity just before closing as we have done many times in abdominal panhysterectomies. Also, careful preoperative preparation of the vagina as previously discussed, might be a distinct factor in the prevention of this complication.

*Prolapse* of the vagina is a late complication which we have seen a few times in the outpatient clinic. This can probably be prevented, first, by ruling out a neurological condition which might be the primary cause of the descensus, and second, to be sure to sew the round ligament, parametrium, and utero-sacral ligament into the vaginal vaults on either side.

### *Summary*

In our series of cases we have seen that the morbidity and mortality in vaginal hysterectomies is definitely less than a corresponding number of cases of total abdominal hysterectomies. Patients who have undergone vaginal hysterectomies very often sit out of bed on the 3rd or 4th day after operation and as a rule leave the hospital 12-14 days postoperatively. The immediate and latent complications are definitely minimal. Too much emphasis cannot be placed upon the ultra-importance of preparing these patients preoperatively, especially by very careful systemic inventory and eradication of all possible factors which might in any way impede the operative or post-operative recovery of the patient. We think it important to prepare correctly the hydrogen ion concentration of the vagina as that might be a factor in decreasing the morbidity and mortality. We suggest the use of some of our newer armamentaria such as the free use of blood, plasma, sulfonamides and intravenous vitamin K or vitamin C when needed. The early active movements of the patient and the early sitting out of bed seem to be important in the prevention of pulmonary complications.

We hope this communication will stir interest in

the vaginal approach to hysterectomy problems. It is well to take into consideration the indications and contraindications and to use these as a guide in choosing the route for hysterectomy. Very often the problem can be more easily solved by doing a vaginal hysterectomy, rather than an abdominal hysterectomy.

### ALONG THE WARD WALK

*(Continued from page 6)*

left intercostal space extending 5-6 cm. from midline. The lungs show only some dullness, impaired breath sounds, and coarse rales in the lowermost portion of the left lower lobe. The liver is palpable two fingers below the costal margin. There is slight pitting edema of upper and lower extremities. External hemorrhoids are present.

Blood count: Hb 70%; RBC 3,600,000; WBC 6000; polymorphonuclears 71%; lymphocytes 17; monocytes 10. Some anisocytosis and some polychromatophilia are present. The urine is essentially negative. Feces are normal. The Kahn test is negative.

X-ray pictures confirm the percussion findings in the heart and show in addition that the cardiac enlargement is not due to pericardial distension, but to the widening of each individual cardiac chamber including a markedly widened conus. Fluid is present in both costophrenic sinuses, but more in the left than in the right.

The electrocardiogram shows evidence of electrical alternation and slight slurring of all QRS complexes, but is otherwise negative. Blood cultures are negative.

Discussion: In spite of all treatments, the patient's condition has not changed. The clinical course, the relative comfort of the patient, the drenching sweats at night, the absence of any suggestive past history, the total absence of murmurs or other adventitious sounds about the heart and the peculiar configuration of the heart, the ever-present fever and the paucity of any other findings make it difficult to fit this type of heart disease into any of the known groups of classification. Could this non-yielding, not-much-disabling condition be a subacute dilation of every chamber of the heart? Is this a pancarditis? Is this rheumatism?

Note: the patient still wonders why he is forced to remain in bed and why he can not get more to eat.

*(Thanks are hereby extended to students Alvin H. Gross, Edward Nissen, and Sol Nichtern for their valuable assistance in compiling the data for these cases.)*

### BLOOD CHEMISTRY

*(Continued from page 13)*

blood. Bernard's classical observations on carbohy-

drate metabolism covered over a quarter of a century, from 1843 when he started investigation on the glycogenic function of the liver, to his death in 1878. One of his observations was that when the quantity of glucose in the blood reaches 300 mg. per 100 cc. of blood, some of it passes into the urine. Hoppe-Seyler reported finding as high as 900 mg. of sugar in 100 cc. of blood in diabetic patients.

However, these and the other numerous investigators were hampered by the lack of suitable quantitative methods for determining the blood concentration. Bernard utilized the reduction of picric acid by glucose as a method, but it required so much blood that it could not be used clinically. Pasteur in the years 1838 to 1850, and Dubrunfaut in 1846, by their studies of optical activity, made certain observations which resulted in the application of the optical activity of glucose to methods for its detection. The development of fermentation methods, which were in common use by 1875, was also due to Pasteur's work.

The first methods involving the reduction of copper in alkaline solution were not quantitative in nature. By 1875 a quantitative adaptation of Fehling's solution to urine glucose determinations was in common use. Hoppe-Seyler stated, however, that with normal blood this reagent did not give a positive test. Pavy's process, in use by 1883, required 20 cc. of blood. It was based on the reduction of copper by glucose, and the subsequent electrodeposition of the precipitated copper on an electrode which was weighed before and after the test. This procedure was obviously unsuited to clinical determinations, as was also the Allihn gravimetric procedure. In 1913, Bang, in his monograph, "Der Blutzucker", published a gravimetric-volumetric procedure, which, while requiring a very small amount of blood, was very time-consuming.

Clinical studies of blood sugar date from 1913. In this year Lewis and Benedict, of the General Mem-

orial Hospital in New York City, published their colorimetric method of blood-sugar, a method so simple that it was immediately employed for clinical use. It was an alkaline picrate method, and it employed as deproteinizing agents, acetic acid and heat. In the next few years scores of studies in many different laboratories were published, and many new methods were devised.

In 1919 another great impetus to the work in this country was given by the publication of the Folin-Wu method mentioned before. The Folin-Wu method, which was modified several times by Folin and others, involved the precipitation of copper oxide by the tungstic acid filtrate and the reduction by this copper of a phospho-molybdate reagent to a deeply colored blue compound. Folin later abandoned the phospho-molybdate reagent in favor of ferricyanide reduction, but Benedict, abandoning the picrate method, made exhaustive studies of the copper-molybdate method, making it more specific and more sensitive.

Hagedorn and Jensen, in 1918, produced a method involving the reduction of ferricyanide to ferrocyanide, and the determination of the excess ferricyanide by iodometric titration. This method is still the most popular in Europe, but the Folin-Wu method, or Folin's later modification of it, is widely used in this country. In 1937 Dr. Wm. S. Hoffman, of the Chicago Medical School, published a ferricyanide method in which the degree of reduction of the yellow ferricyanide to the colorless ferrocyanide is measured, very simply and accurately, with the photoelectric colorimeter.

Today it is interesting to look back on the last half-century and see what the applications of chemistry to medicine have accomplished, in the hands of both the scientific investigator and the clinician. It is not too much to say that some of the most important advances in scientific medicine in our generation have come from the use of chemical methods.

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